TECHNOLOGY DEPT.

TELEPHONE and Management ENGINEER

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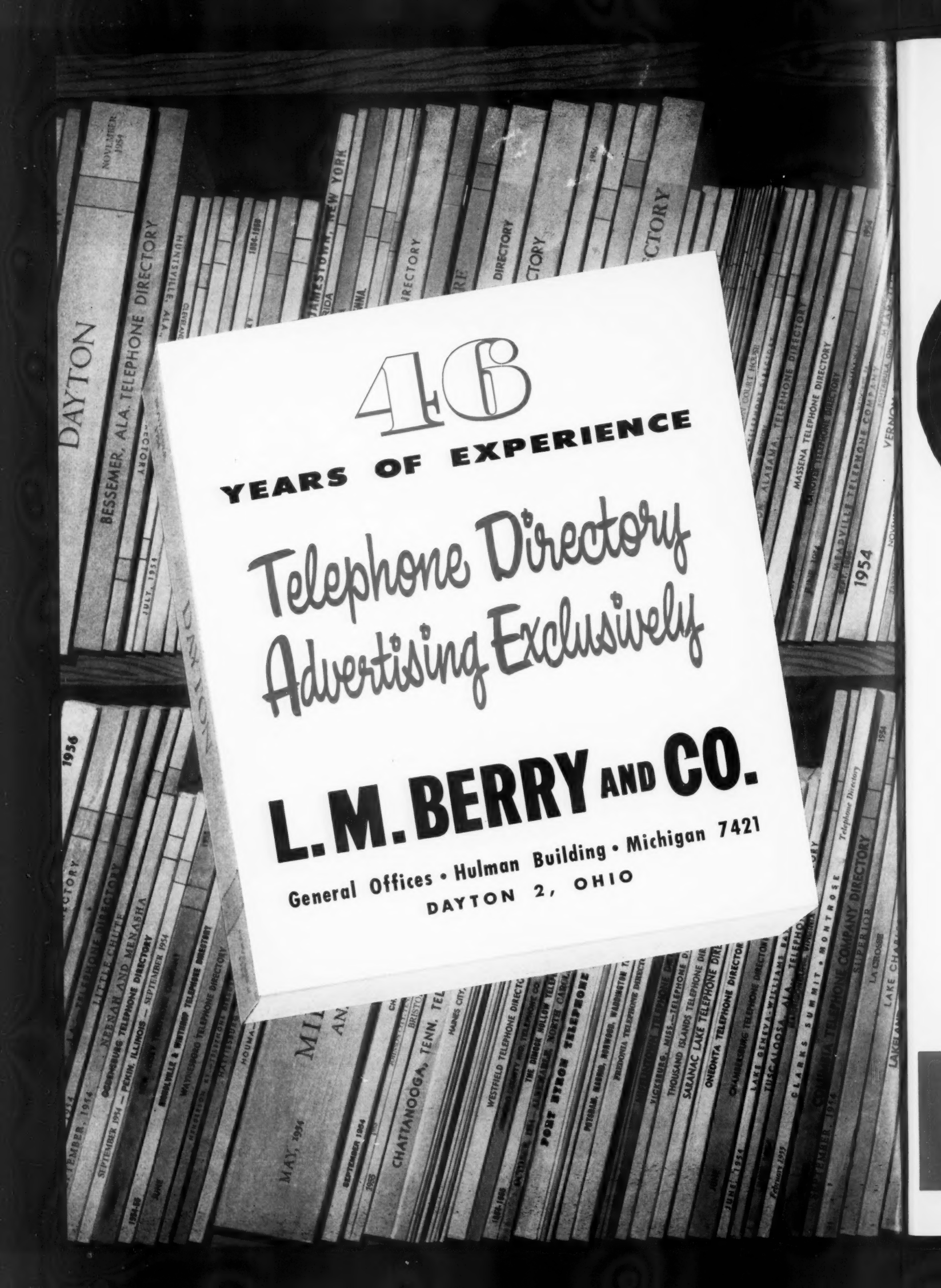
Vol 60
#5

MAY
1956

THE NATIONAL TELEPHONE MAGAZINE

Featuring in This Issue—

- ★ MEET THE PRESS, *by Bill Brooks*
- ★ SUBSCRIBER LINE CARRIER, *by C. M. Roberts*
- ★ TRAINING FOR DIAL, *by Ruth E. Richards*
- ★ MODERN CABLE CONSTRUCTION, *by John S. Reed*
- ★ NEWSLETTERS — INDUSTRY — WASHINGTON — MANAGEMENT


46
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EXCHANGE AREA CABLE

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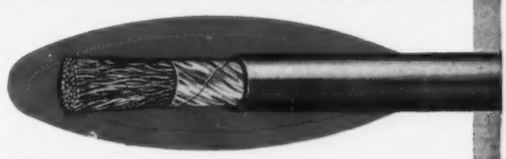
Your needs today, when correctly interpreted and properly met, mean tremendous savings in the future.

TELECABLE Exchange Area Cable meets today's needs and, as manufactured under Whitney Blake high standards of quality, promises to favorably affect the future economy of the Independent Telephone Industry as greatly as WB TELEPRENE® neoprene jacketed drop wire has in the past ten years.

Only products of the highest quality can effect such economies — and the Whitney Blake reputation for top quality products is known throughout the industry.

TELECABLE Exchange Area Cable is available in #24, #22, and #19 AWG, in 11, 16, 26, 51, 76, 101, 152 and 202 pair. It has polyethylene insulation, polyethylene tape over cabled pairs, an aluminum shield and black weather-resistant polyethylene jacket.



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TELECABLE INSIDE WIRING CABLE has semi-rigid Plastite® insulation and brown or ivory Plastite jacket. Light in weight. Water resistant. Excellent electrical characteristics. Unaffected by humidity. Ideal for duct work.

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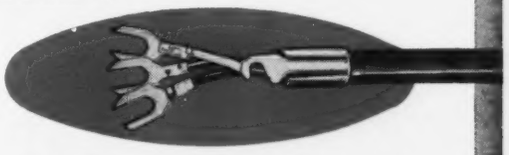
Famous WB long life drop wire has demonstrated that a BETTER wire is much more economical than a CHEAPER wire.



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This sturdy, long-lasting telephone cord resists abrasion, perspiration, humidity, oil and grease. Specify TELECORD on new telephones and on replacements for economy and service.

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Well Built Wires Since 1899

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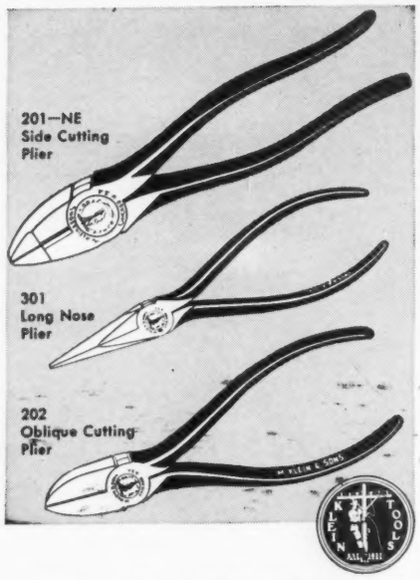

Standard of the Industry for Nearly a Century

Ask the lineman on the pole . . . the electrician at the switchboard. They will tell you that the pliers they rely on are Kleins—every time.

Kleins have been serving the electrical industry since the first wires were strung and today have the same high quality, the same fine craftsmanship, the same individual inspection and testing that have won them their place for a century as first in pliers.

A wide variety of sizes and styles to meet any need . . . but only one quality—the highest.

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International Standard Electric Corp.
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SEND FOR POCKET TOOL GUIDE

This handy pocket sized book giving complete information on the Klein line for Linemen and Electricians will be sent free on request. Write for a copy.

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TELEPHONE and Management ENGINEER

A Telephone Engineer Publication

MAY 1956
Vol. 60 No. 5

The National Telephone Magazine

Editor, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
Managing Editor, JOHN G. REYNOLDS
Advertising Mgr., DON C. SORENSEN • *Production Mgr.*, HELEN McCORKLE
Technical Editor, JOHN S. REED • *Traffic Editor*, RUTH E. RICHARDS
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Small Company Editor, BILL CORMAN
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FRONT COVER

Breaking ground for new Automatic Electric Co. home at Northlake, Ill., are (l. to r.): GEORGE A. BRYANT, president, The Austin Co.; MRS. HATTIE OGRINC, president, Northlake Chamber of Commerce; LESLIE H. WARNER, president, Automatic Electric Co.; DONALD C. POWER, president General Telephone Corp. JOSEPH C. GRIFFIN, mayor, City of Northlake; and THOMAS H. COULTER, chief executive officer, Chicago Association of Commerce and Industry (For complete story see page 90.)

Volume 60, No. 5. Published monthly by TELEPHONE ENGINEER PUBLISHING CORP. Office of Publication, Rochelle, Ill. Executive and Editorial Office, 7720 Sheridan Road, Chicago 26, Ill. Telephone — Rogers Park 4-3040. Subscriptions: U. S. and Possessions, $3.00 per year; Canada $3.50; in all other countries, $5.50. Single copies, U.S.A., 35 cents. Entered as second class matter at the post office at Rochelle, Ill. under the act of March 3, 1879.

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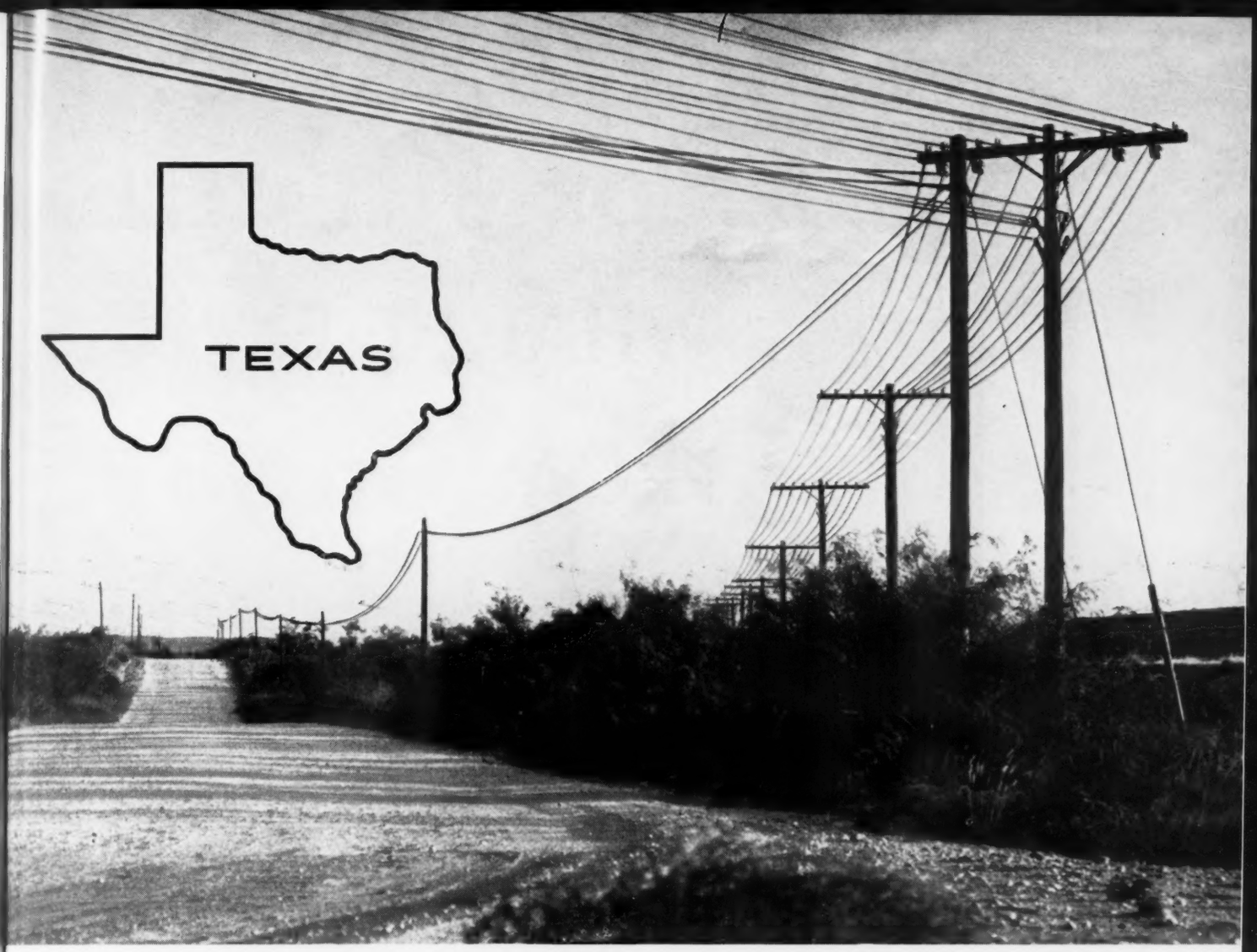

Here is a side-by-side comparison

⅓ fewer poles *with polyethylene covered cables!*

These parallel telephone lines illustrate the savings possible with polyethylene-covered cable. The extremely light weight of polyethylene results in an extremely light cable. Here, the new lines require ⅓ fewer poles. The compact cable construction eliminates the need for crossarms.

Over a million pair-feet of this cable are in service and 70 million more are on order for this section, where climate varies from semi-tropic to semi-desert. The polyethylene jacket must withstand heat, cold, wind, icy and arid conditions. When cable is placed underground, as in urban areas, the polyethylene resists corrosion by stray electric currents in the earth.

This performance in Texas is matched by a great number of similar successful installations in all parts of the country.

BAKELITE Brand Polyethylene and Vinyl Plastics have established a record of dependable performance not only in telephone service but for signal control cable, utility line wire and service drop, power cable and coaxial cable. These materials meet IMSA specifications for fire alarm and signal control cable; ASA standards for weatherproof wire; ASTM D1238-52T Type II, dielectric materials; as well as REA requirements for plastic-covered telephone wire.

Developments in the use of BAKELITE Polyethylene and Vinyl Plastics are reported regularly in Bakelite Company technical publications, available without cost. Much of this information has considerable significance for the telephone industry. To keep informed, write today to Department PV-183

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BRAND
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BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

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FRED FLORANCE TELLS WHAT HE EXPECTS FROM Graybar

FRED S. FLORANCE, General Manager of Highland Telephone Company, Monroe, N. Y.

Three generations of telephone experience. Fred H. Florance (center), President of Highland Telephone, joined the company in 1902. Fred S. Florance (right), a past President of the New York State Telephone Association, joined the company in 1930 as assistant to the general manager. He is now its general manager. Robert L. Florance (left), a veteran of Korea, continues the family tradition as an apprentice installer-repairman. Company headquarters are in Monroe, N. Y. This independent company now serves over 6000 subscribers with modern telephone facilities in 20 communities of Orange County.

Concerning Graybar, Fred S. Florance says:

"First of all, we look to Graybar to get us what we want—when we want it. We like the convenience and economy of placing a multiproduct order through *one source like Graybar*. That means one company is responsible to us for expediting the order. We also save extra expense through single billing.

"Secondly, *Graybar carries only quality products.* When we order through Graybar we know we'll get products backed by the reputation of a nationally-known outfit. 'Out of service' situations involving product failure are reduced almost to zero because we refuse to gamble on unknown or inferior brands.

"Finally, *Graybar personnel* gives us specialized service. Harry Zach, our Graybar Representative, follows through to be sure that I get the items I need. We know that there is a team backing Harry at the Graybar warehouse which has our interests at heart. That's why we listen to Graybar recommendations on both new and established products—Graybar men are up-to-date where the telephone business is concerned.

"Adding it all up—this *specialized Graybar cooperation* and service means special economies to independents like Highland. And where we can save money to provide better service for our subscribers—we do it! That's what we expect and that's what we get from Graybar."

You too can benefit from Graybar's services! Many independent telephone companies rely on Graybar's warehouse system to carry their inventory. Pole line supplies for maintenance and new construction . . . central office equipment . . . subscriber carrier and toll circuit carrier . . . linemen's tools and safety equipment — all are conveniently available from Graybar warehouses located near you. Call us for any telephone need. Like you, we are proud of our independent status. Graybar is owned solely by its operating and retired employees.

547-225

Fred Florance's philosophy is to buy only from the most dependable sources. Here he discusses an order with Graybar Representative Harry Zach. The Highland Telephone Company, which employs 90 people, at times considers Harry Zach as practically one of their staff.

In the field Highland Telephone Company Lineman Ed Kania prepares to make a crossover with a GMPCO cable lasher. Here the company's older wire circuits are being replaced with cable. The Highland Telephone Company relies upon Graybar for many types of outside construction material and supplies.

Groundman Harry Kasch and Foreman Harry Bell check progress on the installation of a new cable. Highland management has long recognized the efficiency of using quality equipment made by leading manufacturers. Highland Telephone Company linemen are provided with the finest in both tools and safety equipment—most of it available from Graybar.

Call Graybar first for...

GRAYBAR ELECTRIC CO., INC.
Executive Offices:
Graybar Building, New York 17, N.Y.

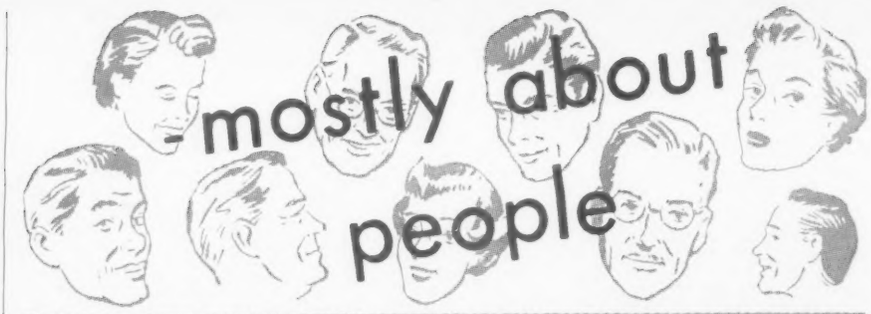
GRAYBAR QUALITY *Everything Electrical*

IN OVER 120 PRINCIPAL CITIES

Dependable

It's good to know the insulators you choose will stand up under all weather conditions, carry heavy loads easily, and resist breakage throughout their long, long life. There's no question about it when you use Armstrong Glass Insulators. They're made of tough industrial glass, and samples from each run are tested three ways . . . to make sure the threads are absolutely accurate, for mechanical strength, and in a rugged thermal shock test. **For complete details** about Armstrong Insulators, get in touch with Armstrong Cork Co., Glass and Closure Div., 295 Fifth Ave., New York 16, N. Y.

Armstrong
GLASS INSULATORS
for communications . . . for power



ACROSS THE EDITOR'S DESK

Teen-Agers' Listing

TEEN Agers' telephone is one of the listings in the Des Moines, Ia. directory for the *William F. Miller* household. Bill is the popular and busy secretary of the Iowa Independent Telephone Association. At our house the listing is Daughter's Telephone but we sort of like Bill's listing as more indicative. This feature is sure fire in any sales campaign for new stations as it solves a problem for the businessman father whose children get in his hair as well as his business. Thanks to *Jack Harty* of Jefferson City, Mo. for sending in the directory listing of the Millers. A main problem was solved in just 6 weeks by our teen ager who has to personally pay all toll calls and message units—the answer was to use Dad's telephone on those calls.

Two Pioneers Pass On

TWO OUTSTANDING personalities in our industry passed on during the past fortnight. *Lloyd L. Spencer*, formerly of the Stromberg-Carlson Co. died after a lingering illness and *Major General W. H. Harrison*, president of International Telephone & Telegraph Co. passed on suddenly just a week later. Both of these gentlemen were well known in Independent telephone circles nationally. More details are carried in another section of this issue.

Pioneers Are Busy

THE KEYSTONE State Chapter of the Independent Telephone Pioneer Association held an anniversary banquet in Johnstown, Penna. on March 17 commemorating the 20th anniversary of the Johnstown Flood on St. Patrick's Day of 1936. President *Edith Yingling* of the Chapter was general chairman of the affair.

National Pioneer president *Foster B. McHenry* visited national headquarters at Springfield, Ill. recently to pay his respects to Executive Secretary *Mayme Workman. Katherine Bauer, Jefferson City,* secretary of the Gary Chapter of the Independent Pioneers also visited with Mrs. Workman. The Gary Chapter will have a summer barbecue later in the season.

A New Book

"A GUIDE to Effective TRAFFIC MANAGEMENT METHODS" is the title of the latest book published by the Educational Division of Telephone Engineer Publishing Corporation. *Ruth E. Richards*, methods supervisor of the General Telephone Co. of Illinois is the capable author of this new 100-page book now available at $3 per copy.

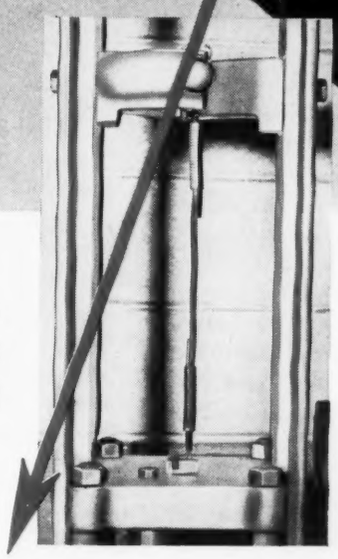
This book includes all of the training articles written by Miss Richards in the series that appeared during 1954 in succeeding articles in our magazines. Popular demand resulted in our publishing the book under one cover as many Independent telephone companies are using her writings as a training course in traffic procedures. Orders for immediate delivery should be sent to us at 7720 Sheridan Road, Chicago 26, Ill.

Ground Breaking

ON APRIL 16 we attended the ground breaking ceremonies on the new factory now being built for the Automatic Electric Company, Chicago, which is located on the site of the former Westward Ho Golf Course of nearby Northlake, Illinois, a Chicago suburb.

Principal speakers at this impressive occasion were *Donald C. Power*, president of the General Telephone Corporation, and *Leslie H. Warner*, president and chief executive officer of the Automatic Electric manufacturing group. Story of the ground-breaking ceremonies is carried in another section of this issue.

DROP WIRE



Proof! Test sample conductor breaks before any slip of insulation or jacket. Standard P-Clamps used.

Won't slip . . .

Won't sleeve . . .

Won't crush . . . in the "P-clamp"!

Saves replacement

General Cable

. . . at your service!

GENERAL CABLE CORPORATION, 420 Lexington Avenue, New York 17, N. Y. Offices and Distribution Centers Coast-to-Coast

- Wisconsin Commission Denies Toll Compensation Plea.
- REA Reports on Telephone Loan Applications.
- REA Revises Routine on Payment of Legal Fees.

"PLEA" DENIED

THE WISCONSIN Public Service Commission has held that switching companies are not required to pay toll compensation to the switched companies they serve.

In a decision dismissing a complaint brought by several Wisconsin switchers against commercial companies which perform their switching for them, the commission said in part: "The complaints are that the switched company should be entitled to compensation from the switching company for their costs of billing and collecting toll revenue from calls placed by its customers and for the toll use of the facilities that it owns. The switching companies contend that the flat-rate charge for service constitutes a complete settlement between the companies for the interexchange of service, both local exchange and toll; that current switching rates are less than the full cost of providing the service; that if payments to cover toll costs are required, an increase in the switching rate would be necessary; and that in connection with such proceedings they would expect to recover their full costs through a higher rate for service to the switched companies. After careful consideration the Commission has determined that the evidence is inconclusive that the switched companies would receive any over-all rate benefits if we were to require the switching companies to pay toll compensation. Under the circumstances we shall dismiss the proceeding without prejudice."

REA REPORTS ON LOANS

AS OF THE END OF FEB., Rural Electrification Administration had on hand 142 applications for telephone loans, totaling $50,700,000. the latest REA statistical summary disclosed last month. From the start of the farm telephone program to the close of Feb., REA made loan allocations totaling $282,743,000, and advanced $132,344,000 to borrowers. Fourteen telephone loans amounting to $4,567,000 were made by the Rural Electrification Administration to borrowers in 10 states during the last week in March. The states included Illinois, Indiana, Kansas, Missouri, Montana, New Jersey, North Carolina, Oklahoma, Pennsylvania, and Tennessee. The loans brought to $60,270,000 the total of such loans made by REA during the first three-quarters of the current fiscal year.

BULLETIN 400-4R1

REA HAS ISSUED "Bulletin 400-4R1," covering payment of legal fees from loan and equity funds. The primary purpose of this revision is to eliminate the distinction between "nominal" and "special" legal services on such loans. Minor language changes have been made throughout the bulletin, which replaces Bulletin 400-4, issued Sept. 23, 1955. Copies of REA Bulletin 400-4R1 may be obtained from REA, Telephone Loans Dept., Washington 25, D. C.

NEW OWNERS

DONALD R. & FLORENCE R. ELKINS purchased Johnstown (Neb.) Tel. Exchange from Glen & Ethel Schmeichel . . . Haviland (Kans.) Tel. Exchange purchased Isabel, Nashville and Sawyer exchanges . . . Fred and Eual Watt purchased Pocassett (Okla.) Tel. exchange from Obel and Aletha Marshall . . . Texas Tel. Co., Sherman, purchased Gunter (Texas) Tel. Co. from Otto C. Cunningham.

Silex & Eolia Tel. Co. will purchase Martinsburg (Mo.) Tel. Exchange. After purchase has been completed the Silex & Eolia Company will change its name to Eastern Missouri Tel. Co. Waldon R. Buchanan, Bowling Green, Mo., is pres. of the Silex & Eolia company . . . . Sully Buttes Tel. Co-op, Inc., Highmore, S. D., will purchase exchanges at Haven, Tolstoy, Onaka, Seneca, Hitchcock, Tulare, Langford and Rosholt . . . . McDonough Tel. Co. purchased Industry (Ill.) Tel. Co. . . . Tri-County Tel. Assoc., Inc., Basin, Wyo., purchased Paintrock Tel. Co., Hyattville, Wyo.

RATE ADJUSTMENTS

TRI-COUNTY TEL. CO., Wolbach, Neb. authorized to increase certain rates and charges. New rates will produce 5.01% return on $62,946.79 rate base . . . New rates of Hartington (Neb.) Tel Co., will produce 5.53%

The new and improved

HIGHWAY heavy-duty

"swing-base"

EARTH-BORING MACHINE

DIGS THE HOLE

AND

SETS THE POLE

in any Soil!

HIGHWAY

Faster, easier positioning . . . efficient, trouble-free digging at any angle

The newly developed Highway "Swing-Base" Earth-Boring Machine allows the operator to rotate the base 180° — and then extend it up to 22". The boring machine will dig at any point within this arc and within the forward and aft traverse. Both movements are hydraulic, allowing finger-tip control.

The unit can be mounted on either a single rear axle truck or a tandem with optional hydraulic stabilizing supports. The "Swing-Base" Earth Borer will dig 9" to 36" holes in any soil, faster and easier than ever before.

New swing base and extension give remarkable versatility and extreme flexibility, allowing exact positioning regardless of location or angle of the truck.

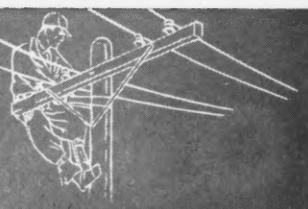
HIGHWAY UTILITY DIVISION
HIGHWAY TRAILER COMPANY

HEADQUARTERS: EDGERTON, WISCONSIN

Manufacturers of: Public Utility Bodies • Earth-Boring Machines • Pole and Cable Reel Trailers • Winches • Power Take-offs • Service Accessories • Commercial Trailers • Trailerized Tanks and Dry Bulk Haulers.

SALES AND SERVICE IN PRINCIPAL CITIES

Industry NEWSLETTER



(Concluded From Page 10)

return on rate base of $70,348.02 . . . Nebraska Continental Tel. Co., Columbus, authorized to charge $5.00 monthly rate for "loud speaking telephone sets" in addition to normal charge for main, extensions or P.B.X. stations and other associated telephone service . . . Waumego (Kans.) Tel. Co. will boost rates to produce $12,080 added income . . . Formoso (Kans.) Tel. Co. and People's Mutual Tel. Co. authorized to increase rates. New Formoso rates will boost revenues $1447. Rates granted Peoples' Mutual will up revenues $3,899 . . . Farmers Tel. Co., Lancaster, Wis., authorized to increase rates $7,989 per year.

WESTERN TEL. CO., Springfield, Minn., authorized to increase rates. New rates will produce 5.17% return on $233,339 rate base . . . Chisago County Mutual Tel. Co., Center City, Minn., granted authority to increase rates. New rates will produce 3.29% return on $56,045 rate base . . . Arthur (Ohio) Mutual Tel. Co., will raise rates to provide $1,188 annual revenue boost . . . Milton & Milton Junction (Wisc.) Tel. Co., authorized to increase rates. New rates will boost revenues $18,358 per year . . . Green Valley Tel. Co., Hawkins, Wisc., will increase rates at Hawkins and Kennan . . . North West Tel. Co., Tomah, Wis., authorized to increase rates. New rates will boost revenues $101,559.

EXPANSION & IMPROVEMENTS

MINNESOTA COMMUNITY TEL. CO. completed $115,000 dial conversion at Le Center, Minn. . . . California Water & Tel. Co. announced plans for $680,000 expansion project in Hemet, Calif., area . . . Iowa Continental Tel. Co. officers approved $1,300,000 construction budget for '56 . . . Miller (Mo.) Tel. Co. converted to dial Apr. 1. . . . Albert Spry, owner of Howard City (Mich.) Community Tel. Co. announced acceptance of $65,000 contract for dial equipment. Howard City exchange will be converted to dial in Dec. . . . Robert Kelley, mgr. of Delton (Mich.) Tel. Co. reports acceptance of $36,893.24 bid for dial equipment to be installed at Delton & Pine Lake . . . Wisconsin Public Service Commission authorized Coloma (Wis.) Tel. Co. to spend $13,000 to convert Coloma exchange to dial. . . . Community Tel. Co., Black River Falls, Wis., received authority to spend $98,810 to convert its Clinton exchange to dial. . . . St. Croix Tel. Co., New Richmond, Wis., planning $200,000 expansion project.

W. S. PIPES, vice pres. & gen. mgr., British Columbia Tel. Co., announced the B. C. company will spend nearly $100,000,000 in the next 3 to 4 years in expanding and improving telephone service . . . . Virginia Tel. & Tel. Co., announced $2,296,935 construction program — the largest in the company's history . . . . North West Tel. Co., Tomah, Wisc., will spend $100,823 to convert its East Troy exchange to dial . . . . Union Tel. Co., completed dial conversion at Muir and Lyons, Mich. . . . Mgr. Andy Klund reports Bloomer, Wisc. Tel. Co., completed its dial conversion project Feb. 15 . . . . Grand River Mutual Tel. Corp., Princeton, Mo., completed dial conversion at Spickard and Brimson, Mo. . . . Moore Tel. System, Inc., completed $35,000 carrier installation at Marlette, Mich. . . . West Coast Tel. Co., announced $8,000,000 construction program for '56. $4,939,000 is scheduled for Washington, $3,128,000 for Oregon, and $142,000 for Northern Calif. . . . H. L. Etes, gen. mgr., Missouri Tel. Co., announced plans for converting Clark & Sturgeon, Mo., to dial . . . .

HIGHLIGHTS

A. W. McDONALD named mgr. of the Yadkin Valley Tel. Membership Corp., Yadkinville, N. C. He had been gen. mgr., Guilford (N. C.) Tel. Co. . . . Frank Richmond, has been named chief engineer of the National Tel. Co., Venezuela. He was general manager, Twin Lakes Tel. Co-op., Gainsboro, Tenn. . . . The Oketo (Kans.) Tel. Co. and Herkimer (Kans.) Tel. Co. have voted to merge, form new company, and apply for REA loan.

Mrs. Rosemary Perry, toll operator for General Tel. Co. of the N. W. at Coeur d' Aelene has won the La Croix award for meritorious service . . . John A. Greene, Ohio Bell president has been elected pres. of the Telephone pioneers of America. Illinois Bell Pres. M. V. Kahler was elected senior vice pres. of the Pioneer group . . . Norris May named mgr., McLeod Tel. Co., Glencoe, Minn. . . . W. H. Trogdon named mgr., Randolph County Tel. Membership Corp., Asheboro, N. C.

RALPH DOWNER elected pres., Peoples' Co-op Tel. Co., Lyons, Ore. . . . *Alfred Bader* reelected pres., Chapman (Neb.) Tel Assoc. *Wm. Blauhorn* is v. p., *Francis Janky*, sec-treas. . . . *Floyd D. Nave* named wire chief, Lincoln (Neb.) Tel. & Tel. Co.'s Fairbury exchange. He succeeds the late *J. C. Gear* . . . *R. S. Owen* named commercial mgr. Taylorsville district of Illinois Consolidated Tel. Co.

JOHN G. BRADBURY, vice-pres.-operations since Jan., 1943, elected executive v. p. of Southern Bell. *Ben S. Gilmer*, formerly vice pres., Pacific Tel. & Tel., elected vice pres. & director. Mr. Gilmer succeeds Mr. Bradbury as vice-pres.-operations . . . . *C. O. Ellis*, named supt. of communications & signals, Chicago & Rock Island & Pacific Railroad.

NO. 121 CORDLESS SWITCHBOARD: Striking walnut veneer cabinet and eye-resting suntan keyboard win ready approval of subscribers.

MODERN SERVICE, too: Capacity: 5 trunks, 16 extensions, 5 connecting circuits. "Instantaneous busy" feature prevents interference with toll calls. Common talking circuit on lines, individual line relays (to prevent line leakage), and indicating lamps make operation easy.

Servicing is easy, too. Just drop down the hinged key panel and lift off the rest of the cabinet as a unit.

(Color telephone also by Stromberg-Carlson; available in 8 colors.)

Want more PBX business in the next 30 days?

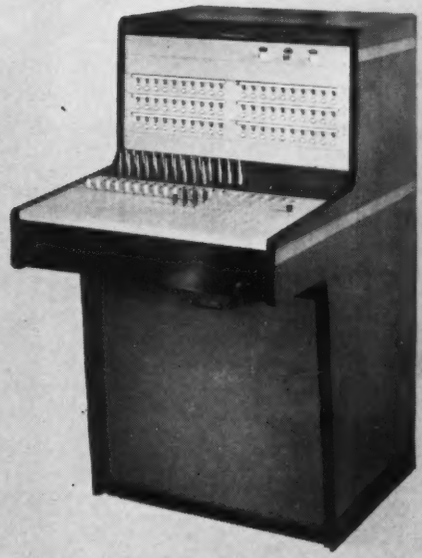
Let America's most beautiful switchboards help you!

Styled in exquisite taste, finished in warm walnut veneers that blend beautifully into any office setting, these Stromberg-Carlson boards speak hospitality.

The artistry of their cabinets is matched by the dependable service they provide, and their popularity is already helping hundreds of independent telephone companies to increase their revenue.

Use them as a "wedge" to open up new PBX business—today, tomorrow, for the next 30 days. See how much excitement they arouse among subscribers!

Call or write your Stromberg-Carlson representative for data and sales literature which will help you solicit new revenue.



NO. 120 SWITCHBOARD: Warm, rich veneers and matching suntan panel fit well into any office surroundings.

CAPACITY: 80 extensions, and either 15 jack-ended trunks and 15 cord circuits, or 10 plug-ended trunks and 10 cord circuits.

FEATURES include trunk re-ring on jack-ended boards, (trunk lines immediately freed, even though operator delays pulling down cord), conference calls, and keys for ringing, ring-back, listening and dialing, through dialing and night connection. Instantaneous busy on plug-ended boards.

TO SERVICE, you just lift out the rear panel and swing out the relay gate.

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It is a characteristic of the Telephone Business that, despite billions of dollars invested in physical equipment, Telephone Companies really sell SERVICE.

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Washington NEWSLETTER

- House Passes Highway Construction Bill.
- Communications Tax Changes Recommended.
- Mobilization Plans Executive Reserve

HIGHWAY CONSTRUCTION BILL

THE FEDERAL Highway Construction Bill reached another intersection along its winding road through Congress when the House passed a measure that includes a utilities' reimbursement provision which would write into law what is said to be the present practice of the Bureau of Public Roads — that federal funds may be used to defray the cost of relocating utility facilities in road construction projects in the same proportion that the state spends its money.

Before adopting the relocation provision, the House in a compromise action, amended the committee-approved reimbursement section to provide that "federal funds shall not be approrrtioned to the states under this section when the payment to the utility violates the law of the state or violates a legal contract between the utility and the state." Rep. Robert E. Jones (D., Ala.), one of the strongest opponents of the original relocation provision, authored the amendment that was accepted by a voice vote.

With the House action, the only remaining step before the utilities reimbursement provision would become part of the law, after several years of legislative discussion, was a joint House-Senate conference on the highway measure and then necessary floor action on agreements reached by the representatives of the two houses.

The Senate in 1955, in adopting a road-building bill, approved an entirely different reimbursement provision, calling for payment of up to 50% of relocation costs whenever, under state law, the relocation cost is required to be borne by the utility. It also would apply a limit on highway funds which could be used for relocation payments to 2% of the state's total apportionment for the year.

The House compromise brought to an end a bitter struggle which continued after the House Public Works Committee issued its report on the highway legislation. Nine members of the group signed minority reports castigating the reimbursement principle, and the provision came under more criticism when the measure came up for House Rules Committee clearance as part of the legislative process.

Here are how the House and Senate versions of the reimbursement principle stacked up as the highway bill headed for conference. The provision in the House bill is as follows:

"(a) Subject to the condition contained in this section, whenever a state shall pay for the cost of relocation of utility facilities necessitated by the construction of a project on the federal-aid primary or secondary systems or on the national system, including extensions thereof within urban areas, federal funds may be used to reimburse the state for such cost in the same proportion as federal funds are expended on the project: provided, that federal funds shall not be apportioned to the states under this section when the payment to the utility violates the law of the state or violates a legal contract between the utility and the state.

"(b) For the purposes of this section, the term 'utility' shall include publicly, privately, and cooperatively owned utilities.

"(c) For the purpose of this section, the term 'cost of relocation' shall include the entire amount paid by such utility properly attributable to such relocation after deducting therefrom any increase in the value of the new facility and any salvage value derived from the old facility."

The section in the Senate-approved roads bill providing for relocation expense reimbursement is as follows:

"(a) Subject to the conditions contained in this section, 50% of the cost of relocation of utility facilities necessitated by the construction of a project on the federal primary, secondary, or interstate systems in which federal funds have participated, may be paid from federal funds whenever under the laws of the state where the project is being constructed the entire relocation cost is required to be borne by the utility.

Sections (b) and (c) of the Senate bill are identical to the House counterpart, but it has two more sections:

"(d) No more than 2% of all sums apportioned to any state for any fiscal year for expenditures on such systems may be expended under the provisions of this section.

"(e) Any utility required to relocate a facility within the terms of this section shall have a right to pay-

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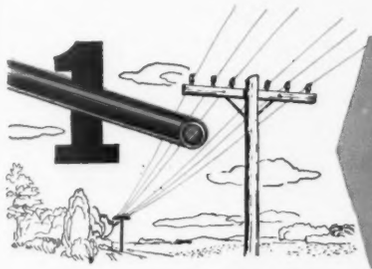

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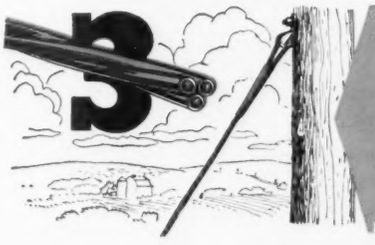
For short subscriber loops and secondary toll lines use .080"-30 E.H.S.—and for toll lines and long subscriber loops install .104"-40 H.S. Copperweld* "talks better" than any other high-strength conductor. It's strong, non-rusting, light in weight. Economical and easy to string, it's unequaled for long-life, long-span construction.

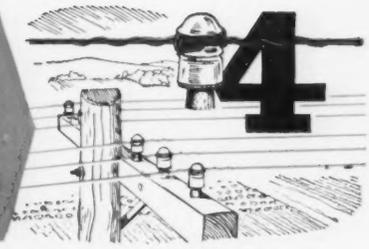
Build with Copperweld DROP WIRE

Not only is Copperweld the strongest drop wire made, but its non-rusting copper covering provides excellent conductivity. No. 18 Copperweld has a breaking strength of 400 pounds for the pair. This greater strength means greater mechanical safety—provides the added stamina to withstand heavy ice and wind loads.



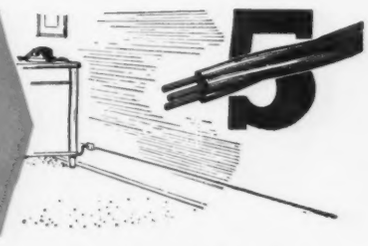
Build with Copperweld GUY STRAND

You can end guy maintenance and replacement costs by installing Copperweld—the strong, non-rusting strand that lasts as long as modern poles. Use 3 No. 8 Copperweld for 6M breaking loads, 3 No. 10 for 4M, and 3 No. 12 for 2.2M. These guys are easy to handle—cost less per year than rustable guys of comparable strengths.



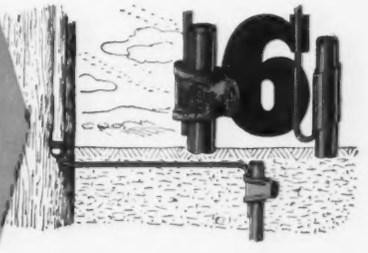
Build with Copperweld GRIP-FLEX TIES

The preformed Copperweld Grip-Flex Tie is strong, non-rusting, simple in design, easy and inexpensive to apply. It reinforces the conductor over the entire length of the tie, prevents fatigue, and assures uniformity of construction. Copperweld Grip-Flex Ties are made for line wire sizes from .080" to .165".



Build with Copperweld INSIDE WIRE

Copperweld Inside Wire is used by the world's leading telephone systems—and for good reasons, too. It has good conductivity, is low in cost, pliable, and has the high strength to withstand repeated flexing and long duct pulls. Copperweld Inside Wire is available in 2, 3 or 4-wire twisted or jacketed construction.



Build with Copperweld GROUND RODS

For permanent grounding protection, you can depend on Copperweld—the only ground rod that's Molten-Welded. The non-rusting copper covering provides high conductivity—the steel core permits easy driving. With Copperweld Ground Rods, you'll have copper-to-copper contacts throughout, thus assuring low resistance.

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Washington NEWSLETTER

(Concluded From Page 16)

ment out of federal funds as in this section provided. The Secretary (of Commerce) is authorized to make such payments on the basis of an agreement approved by him, entered into between the state highway department and the utility, which agreement shall contain an estimate or an agreed price of the cost of relocation. In lieu of such agreement the utility may file with the state highway department a certified statement of the cost of relocation, subject to the approval of the state highway department. The state highway department shall transmit such statement to the Secretary with the final voucher for approval by the Secretary."

The House Public Works Committee's minority opposition to the provision that utilities should be reimbursed took the position, in filing a report, that "This section would allow the utilities to saddle the motorist-taxpayer with the $1.5 billion cost of relocating their facilities." It said that the utilities are "thrice bound to pay for relocation of their facilities which occupy rights-of-way"—by contracts with the states; state laws which make their doing so a condition of their occupancy of rights-of-way; and common law where there are no contracts or state statutes."

They added that "Actually, a case can be made against allowing utilities to occupy highway rights-of-way in areas where they can acquire their own. Their facilities are extensive and they are becoming a greater expense and inconvenience to highway users. A time may come when it is utterly undesirable for rights-of-way to serve as conduits for a network of utility pipes, wires, and poles. With the expanded use of the nation's roads, utility facilities are becoming serious traffic hazards."

TAX CHANGES

COMMUNICATIONS tax changes are recommended by a subcommittee of the House Ways & Means Committee that would result in a net revenue loss to the Treasury of $2,500,000 still had a long way to go through Congress after being reported out by the subcommittee and there is some doubt as to whether the measure can be enacted into law before the current Congress adjourns.

The Senate would still have to give consideration to the proposals after the technical and administrative changes in the excise tax laws proposed by the subcommittee came under House review and with lawmakers aiming at an early adjournment in the Presidential convention year, little time is available.

Altogether, the recommendations of the subcommittee relating to changes in the excise tax laws come out with a net revenue loss of slightly more than $2,000,000, with increases around $15,000,000 and decreases of about $17,000,000 estimated.

MOBILIZATION PLANS

DEFENSE MOBILIZER Arthur S. Fleming has established a Telecommunications Advisory Board whose job will be to consider the relationship of national telecommunications policies to specific mobilization plans.

Headed by Maj. Gen. Jerry V. Matejka (USA, ret.), ODM Assistant Director for Telecommunications, the board will be made up of representatives of the Departments of State, Defense, and Commerce, the Central Intelligence Agency, Federal Civil Defense Administration, and the FCC. TAB members will be of the level of assistant heads of the agencies involved.

In the order establishing the TAB, Mr. Fleming said that the board "shall be called upon to furnish advice and guidance to the Director of the Office of Defense Mobilization with regard to:

"(a) The relationship of national telecommunications policies to specific national mobilization plans; (b) the compatibility of national telecommunications policies and programs with other policies and programs involving the national security; and (c) such other related national telecommunications matters as may be requested."

EXECUTIVE RESERVE

TWELVE TELEPHONE company officials, both Independent and Bell System, who have served the government on loan to the former National Production Authority and the presently-established Business & Defense Services Administration of the Department of Commerce have signified their willingness to serve on the Executive Reserve that has been constituted by Presidential order to function in the event of an emergency.

Agencies with which persons from industry have served for six-month or year-long tours have been polling these WOCs to determine if they would be available in the event of a war or other national emergency.

Officials of the telephone industry who have said they would serve include: Hugh Barnhart of the Rochester (Ind.) telephone Co.; Warren Chase of the Ohio Bell Telephone Co.; Stanley Damkroger of American Telephone & Telegraph Co.; Luther W. Hill of the Carolina Telephone & Telegraph Co.; George Ireland of the Bell Telephone Co. of Pennsylvania; Ralph Lucier of the United Telephone Co. of Indiana; Clifford Newton of Southern Bell Telephone & Telegraph Co.; J. Raymond Peterson of Southwestern Bell Telephone Co.; Elmer Pothen of Northwestern Bell Telephone Co.; William A. Vanstory of New Jersey Bell Telephone Co.; G. R. Wilhelm of Chesapeake & Potomac Telephone Co.; and R. E. Williams of the Automatic Electric Co., who served with NPA during the Korean conflict and is again serving BDSA. — *By the editors of "Telecommunications Reports."*

"Any man who can operate a telephone system can operate a CARRIER system!"

says H. C. Slusher, Vice President and General Manager, Commonwealth Telephone Company of Ohio.

Lenkurt Type 33A Carrier was especially designed for those with little or no experience with carrier. You don't need high-frequency experts on your staff to enjoy all the benefits its additional circuits will give you.

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What's more, Automatic's engineering service is available at any time during the life of your Lenkurt Carrier System. Our communication specialists stand ready to provide personal advice and service every step of the way.

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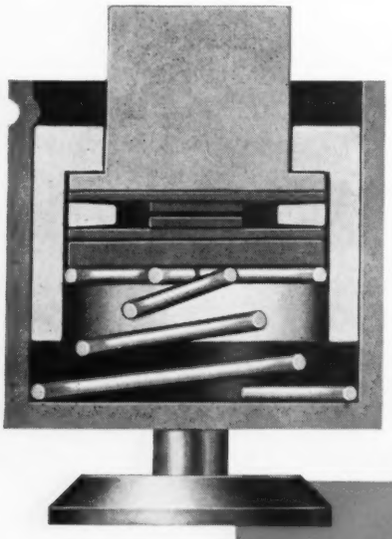
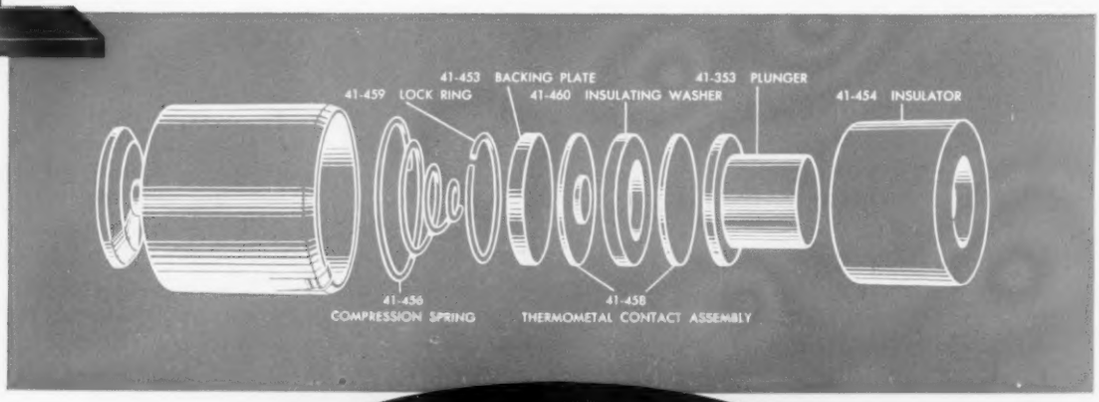
BUILT LIKE AN AUTOMOBILE SPARK PLUG

The new Cook MYTIGAP Arrester for protection of telephone circuits against lightning and power potentials employs no carbon or organic material in its construction. Its discharge electrodes are an alloy of nickle, manganese and RU78. This is the same material used for the electrodes in the spark plug of your automobile engine and, obviously, it withstands the destructive effects of arcing and oxidation better than any other known material.



The average service free life of a spark plug employed in an 8 cylinder engine is 10,000 miles, and is required to fire 13,527,000 times in an atmosphere of vaporized hydrocarbons at a temperature of some 1800°F. and a pressure of 150 pounds per square inch. Such rugged, dependable service is possible only by the use of effective material for the discharge electrodes. By using this material for the arcing points, the tendency to foul the gap (as often happens when carbon electrodes are used) is eliminated.



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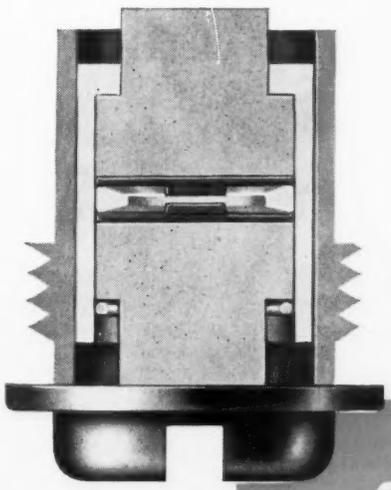
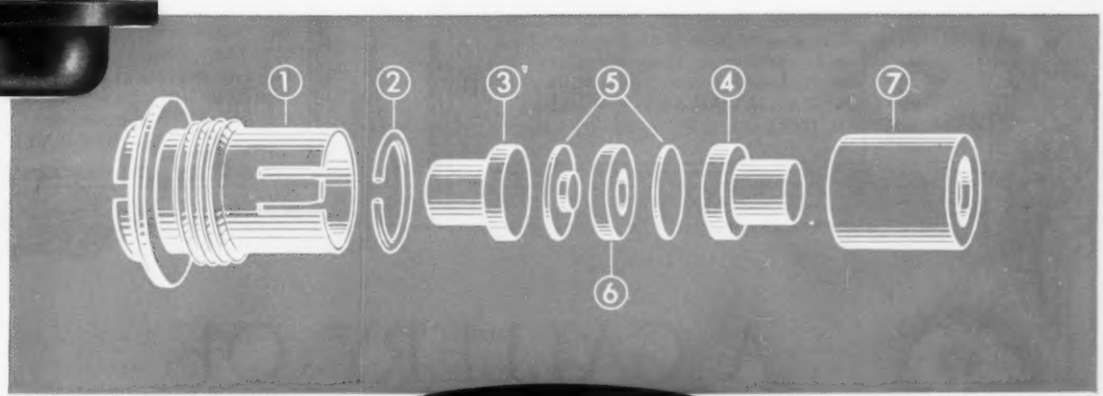
A lightning arrester, surge and power cross protector all in one with self restoring operation after functioning. The internal structure of the MYTIGAP is so arranged that an arc of moderate duration will cause the electrodes to warp together, thus providing a continuous metallic path to ground and eliminate the arc. These electrodes stay in contact as long as they are sufficiently hot, but when the disturbance ceases, they quickly return to their normal position leaving the telephone line in its normal state. The MYTIGAP is also arranged so that the interior parts are readily accessible, therefore, any parts that become melted by extreme disturbances can be readily replaced.



	Description	Part No.
1	SHELL	41-473
2	LOCK RING	41-472
3	BACKING BUTTON	41-471
4	BACKING BUTTON	41-471
5	CONTACT ASSEMBLY	41-470
6	INSULATING WASHER	41-469
7	INSULATING CUP	41-468



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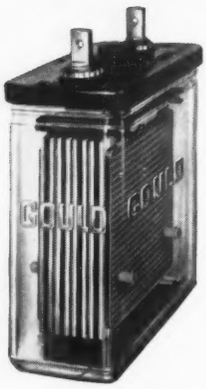
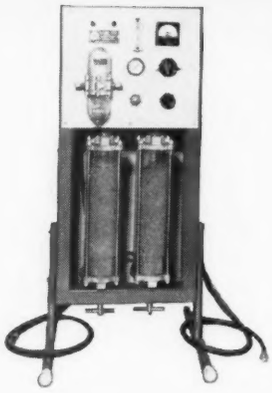
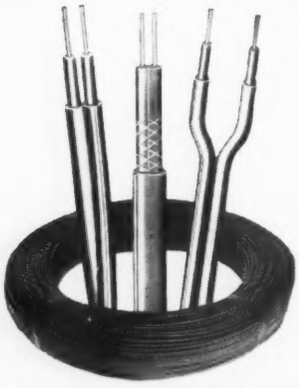


Outstanding Battery Performance is yours when you choose Gould Plante Batteries. Thick, grooved pure lead positive plates give many years of trouble-free service! Made by GOULD-NATIONAL BATTERIES, INC., the finest money can buy.



Air Compressor Dehydrator for supplying dry air to aerial and underground cables. Supplies up to 40 cables. Individual air flow indicators for each cable. Both Automatic and Manual Units are available. S & G MFG. CORP.



Long Service Life and Low Plant Costs go hand in hand with the installation of ENDURPRENE — The Neoprene Drop Wire available in both Copperweld and Bronze. This flexible and easy-to-handle wire is made by GENERAL INSULATED WIRE WORKS, INC.

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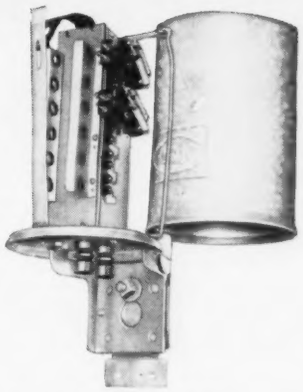
Preformed Guy-Grips for Messenger or Guy Strand are the safest, surest method of dead-ending guy-wires and strands. Guy-Grips are quickly applied without tools. Installation savings range upwards to 50%. They can be applied either to the cut end or coiled end of the strand, permitting the strand to be cut to the proper length after application of the Guy-Grip. PREFORMED LINE PRODUCTS CO.



For Use with Plastic Cable. The S-20V protected or unprotected terminal has 2 cable entrances, arranged to take any size of compression coupling from 6 to 51 pair. Pipe Plug inserted when one cable entrance is required. A product of COOK ELECTRIC COMPANY.

For Line Clearance. Heavy-duty trimmer makes full 1½" cut. Cyclic motion, compound leverage and ball-bearing pulleys speed up cutting. Cannot get stuck. Made by NEWMAN MFG. CO.

Tailored for Needs of Telephone Industry —the 630-T Volt-Ohm Milliammeter is designed for work inside on panel, checking circuits on poles, etc. Supplied with adjustable neck strap, hand strap and special test leads. THE TRIPLETT ELECTRICAL INSTRUMENT CO.

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Management NEWSLETTER

- Four-Day Work Week By 1975.
- Developing Future Executives.
- New Vacation Chart Offered Personnel Directors.

FOUR-DAY WORK WEEK

A FOUR-DAY WORK WEEK by 1975, with atomic-powered automobiles and commuting by helicopter, has been forecast by *Melvin H. Baker,* chairman of the board, National Gypsum Co., Buffalo, N. Y.

Some time in the future, Mr. Baker said, the average American family may have an income of $25,000 a year. However, he cautioned *against too much enthusiasm about this "glimpse of Utopia.* I am afraid there may be some fool's gold in all this glitter. You don't win the Irish Sweepstakes just because you're holding a couple of tickets. We must earn our right to this rich inheritance."

The low birth rate of the Thirties, the speaker pointed out, is bringing an actual decrease in the working population in comparison to total population. Already shortages of skilled labor, scientists and engineers, and management talent are becoming evident.

"The scarcity of management skills," he warned, "is becoming a serious menace to industrial growth. It is management that must maintain a high rate of productivity if we are ever to reach the Utopia of tomorrow. With a labor force only 14 per cent larger in 1965 than it is today, we'll have to produce 40 per cent more goods and services to supply the larger population. Are we doing enough to cultivate these human resources on which our progress depends?"

Automation, Mr. Baker reminded his audience, will result in a considerably higher proportion of management in the labor force, because of the increasing value and complexity of machinery, and a constant upgrading of skills. "That brings up perhaps my gravest doubt about where we are going and how we're going about it. *Are we really educating our young people to meet the demands this kind of job will place upon them?* Specifically, are the people who will someday be moving into management getting the kind of education they must have?"

"Our colleges should be raising their standards," the speaker declared, "and business should cooperate." Primarily and secondary schools are overcrowded and short of teachers. "We simply cannot afford this erosion of our human resources. I think that *business has a serious responsibility to do more than it is doing.*"

Business has a moral stake as well as a selfish interest in this problem, according to Mr. Baker. "The integrity of business rests with the values we inculcate in the people who direct it. The quality of a product and the quality of the service for that product emanate from the character of the men who produce and sell it. Quality in certain respects is a magical mirror that reflects the philosophy of the people who make up the organization."

The people who will man the intricate technology of the future cannot be "integrated and proficient performers without some substantial creed beyond their work and their possessions," Mr. Baker concluded. "I believe that sound morals necessary to integrity will determine the future of our great America."

MANAGEMENT DEVELOPMENT

WHETHER BUSINESS is going up or down, industry should never let programs for developing future executives suffer, T. W. Prior, Director of Training, The Goodyear Tire & Rubber Co., advised a recent A M A Personnel Conference.

"Training never stops, and it must be done at all levels," Mr. Prior emphasized. "The machinery that is put to work in developing an executive from the time he walks in your door until the time he is president must be a *conveyor belt rather than a shot in the arm type of program.* This type of program, although it may cost some money to set up and operate, is still so inexpensive in the over-all, considering the long-range objectives, that *you cannot afford to be without it.*"

Management development — the growth of people to assume management responsibilities — falls into three basic steps, according to Mr. Prior: (1) What do we need to perpetuate this organization? The answer is largely an inventory plus anticipated expansion or contraction. (2) Who can do it? Who is there in the company that can take over this responsibility? (3) How can he be trained? Is his background sufficient? Does he need to be prepared for this job?

In developing management personnel, Mr. Prior said the tools are not as important as is sincere interest. Executive development must include a good program of

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CIRCUIT TIME
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OPERATING FORCE

REDUCE COST OF OPERATION • IMPROVE CUSTOMER SERVICE

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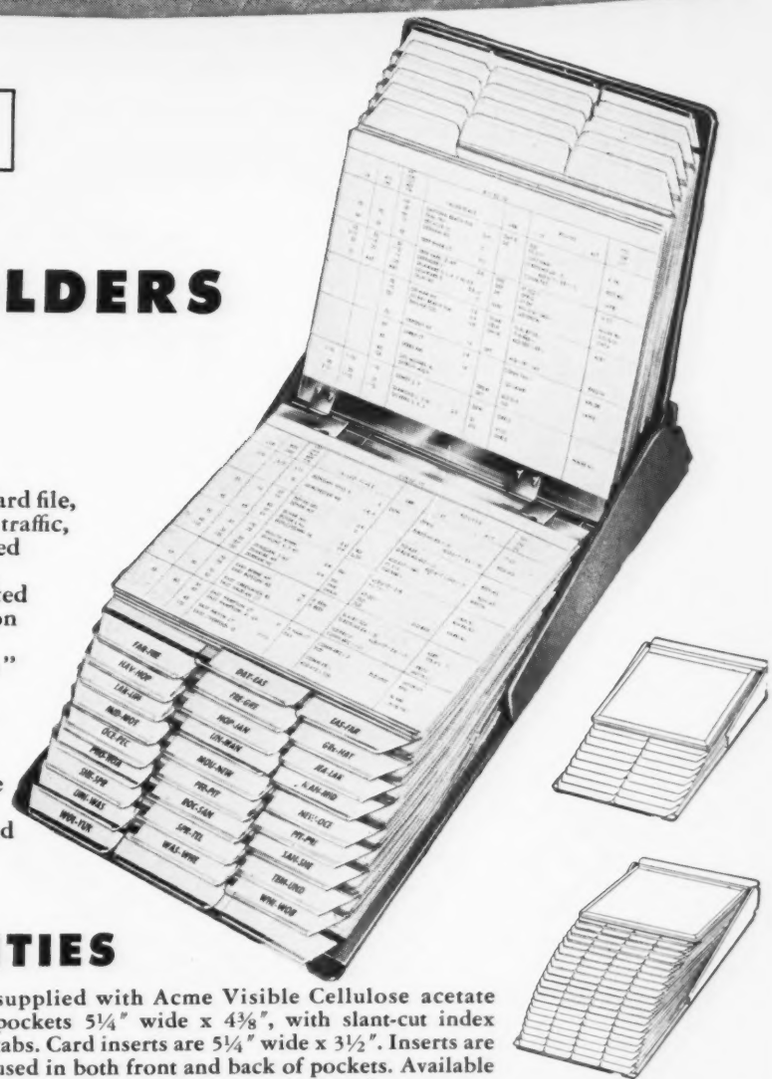
MULTI-CARD BULLETIN HOLDERS for Long Distance Inter-Toll Dialing

One operator with her individual Routing Multi-Card file, containing over 95% of the routes for originating traffic, can do the job faster and more efficiently.—No need to bring in a second operator.—No guess work; routes are before her—*visible.*—Calls are completed quicker.—By this method of centralized provision of Routing records, more routes are available to the Central Office force. Consequently less "121" calls go over the LD circuits. With the use of the Acme Visible Multi-Card Bulletin Holders, each operator is able to determine over 95% of her routings and rates. Operator can immediately compute charges on Coin Box calls or where there has been a request for T & C. By not trunking to Rate & Route operator, less operator time is needed at these positions.



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Acme Multi-Bulletin holders are carried in stock in 3 sizes—with 10, 15 or 20 hangers. Each unit is available with 2, 3 or 4 pockets per hanger to provide a wide range of capacities for listing towns frequently called—from 720 to 2,880 listings using 6 lines to the inch and from 960 to 3,840 listings using 8 lines to the inch. They are supplied with Acme Visible Cellulose acetate pockets 5¼" wide x 4⅜", with slant-cut index tabs. Card inserts are 5¼" wide x 3½". Inserts are used in both front and back of pockets. Available for immediate shipment; you may order one or as many as you need at a time. Units are supplied complete with insert cards and labels for index tabs.

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☐ Have representative call. Date..... Time.....

☐ We are interested in Acme Visible equipment for ..... records.
KIND OF RECORD

Company..... Attention.....

Address.....

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Here are two informative booklets illustrating and describing various units which have been designed for, and use-tested by, telephone companies throughout the country.

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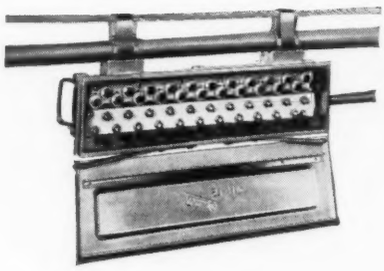
You're sure of top-flight quality with Kellogg line supplies . . . every item has been put through the most rigid performance tests and delivery is fast . . . Kellogg has 7 warehouses and more than 100 distribution points across the nation.



Suitable for Use in cable systems maintained under gas pressure. The housings of the 11 and 16 pair Type "ST" Strand Cable Terminals are equipped with stub cable entrance holes at opposite ends for reversal of stubs. RELIABLE ELECTRIC CO.

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Lighter, Last Longer, Cost Less to Install. New Roebling telephone cables and wires are completely insulated and sheathed in modern plastics. Flexible and easy to handle. Up to 404 pair, in sizes 19, 22 or 24 A.W.G. conductors. JOHN A. ROEBLING'S SONS, CORP.

Versatile Plastic Screw Anchor meets needs of telephone industry. For use in all materials from plasterboard to concrete, indoors and out. Nine sizes for screw sizes 5 through 20 and ¼" through ½" Lag Screws. HOLUB INDUSTRIES, INC.

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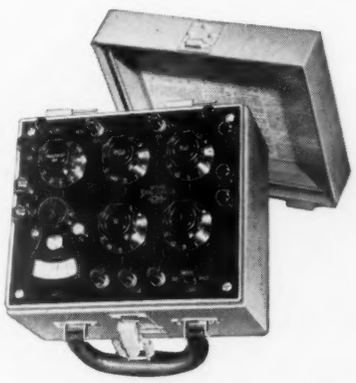
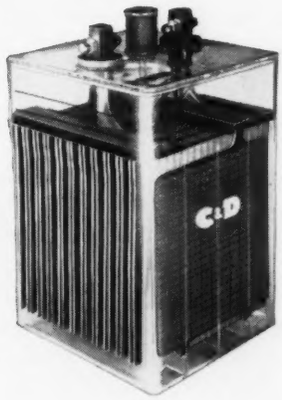
TOP-FLIGHT LINE SUPPLIES

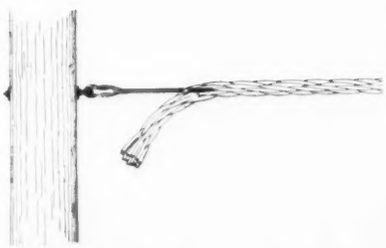


Shallcross No. 6100 Wheatstone Bridge
This portable instrument is designed to measure any resistance from 1 ohm to 1 megohm, locate grounds, crosses, opens and shorts by the Murray, Varley, Hillborn or Fisher Loop and Capacitance tests. Can be operated by repairman wearing gloves. SHALLCROSS MFG. CO.



Extra-Long Life! —The suspended and supported plate construction is an exclusive feature of C&D BATTERIES. Choose C&D's PlastiCal (lead-calcium grid) for life expectancy of 25 years . . . for 14 years expectancy, specify PlastiCell (high tensile lead alloy grids). Made by C&D BATTERIES, INC.

Kellogg's Standard Outside Plant Handbook now available at special price while quantities last. Reduced to $2.75 a copy with ten or more copies priced at $2.50 each. Every phase of outside plant telephone pole line construction is covered in book.



Preformed Dead-Ends for Telephone Line Wires and Rural Distribution Cable Messenger. No tools required, can be installed without cutting wire. Available in galvanized steel, copperweld, stainless steel and bronze. PREFORMED LINE PRODUCTS COMPANY.

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(Concluded From Page 24)

executive apprenticeship. The over-all program must be long range, including good sound personnel planning and training.

BUILDING FOR TOMORROW

NO MANAGER today has any good excuse for not building a firm line of succession behind him, *Roy C. Ingersoll*, chairman of the board and president, Borg-Warner Corp., declared recently.

"Many of those men who, in their time, were lauded as great business leaders were failures, in my book," Mr. Ingersoll said. "They were so busy operating their companies or so jealous of their positions that they did not take the time to train and build men in their organizations who could carry on in the future. Many of these once great and seemingly promising concerns have disappeared completely because of the short-sighted attitudes of their owners or managers."

Some decades ago, he noted, there may have been some light excuse for failing to build "management in depth" for management in the early days of the free enterprise system was purely an art. But today management is much more complicated and technical. And, while still an art, it is also a science. "*As a science, it can be taught to any who can read and write and who have the willingness to learn.*"

To build *management in depth* means Mr. Ingersoll explained, to have a reservoir of capable sub-executives who are trained and ready to step into the shoes of their superiors. A company, he advised, should build management in depth in every area that affects sales and earnings and services to customers and the public.

Obvious though this seems, executives often fail to do it. Mr. Ingersoll cited three principal reasons: (1) The executive may be apathetic about the future of his company or his department; (2) he may be afraid to train and promote subordinates who could prove so capable that they might take his job; or (3) he may be so busy with the day-to-day operation of his business that he lacks the time or the patience to teach those around him.

VACATION CHART

A 1956 VACATION SCHEDULE Chart promises to make it possible for personnel directors and office managers to eliminate headaches in arranging for a coordinated vacation schedule for all employes. The chart provides for the listing of 23 employes, their duties, and the weeks of their scheduled vacation. Made for desk use or for posting, it enables personnel directors to see at a glance how all jobs will be covered at any time during the vacation period. Use of the chart may make possible either the proper rescheduling of vacations or alert office managers to the need for emergency replacements in various departments.

The chart has been prepared in the form of a promotional mailing piece by Office Temporaries, Inc. The company specializes in providing skilled office and clerical help, on a temporary basis, to financial and business houses in New York City and the surrounding areas. Copies of the 1956 Vacation Schedule Planning Chart are available without obligation, from Office Temporaries, Inc., 39 Cortlandt Street, New York 17, N. Y.

BIBLE BOOK FOR EMPLOYES

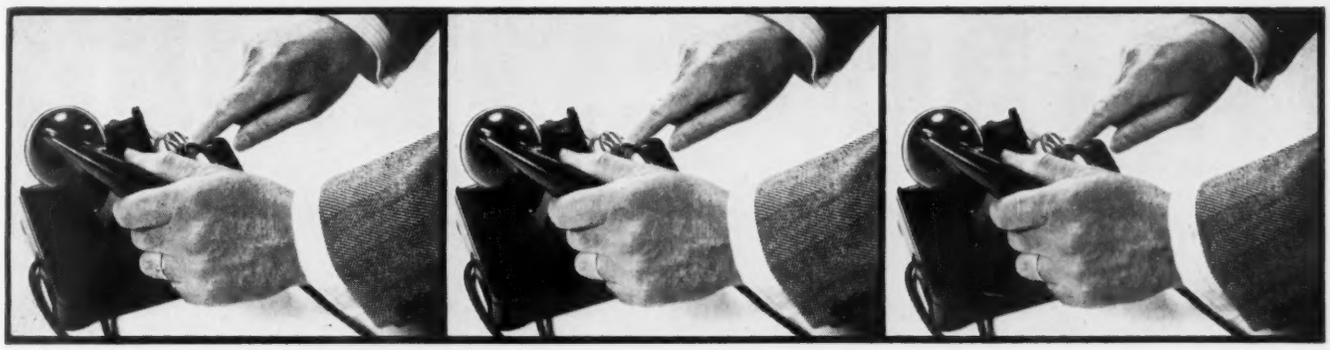
A PUBLISHER and distributor of educational pamphlets for the employes of industrial concerns, has announced issuance of its latest booklet, *Great Moments From the Bible*. On the basis of orders from such firms as General Motors Corp., Aluminum Co. of America, American Telegraph & Telephone Co., Western Electric Co. and others, the first printing of the new booklet was set at more than 1,000,000 copies, it is stated.

More than 700 companies, with from 50 to 500,000 employes, subscribe to the Alumni series, Subject-matter falls into three basic categories: economics, business-help and educational-inspirational. In the economics categories, such titles as "Who Profits From Profits?" and "As Others See Us," among others, have been published. Publisher is Alumni Publications, 318 East 32nd Street, (Dept. T.E.&M.) New York, N. Y. In the business-help category are such titles as "It Pays to Be Customer Minded" and "How to Fight Fatigue," and many others.

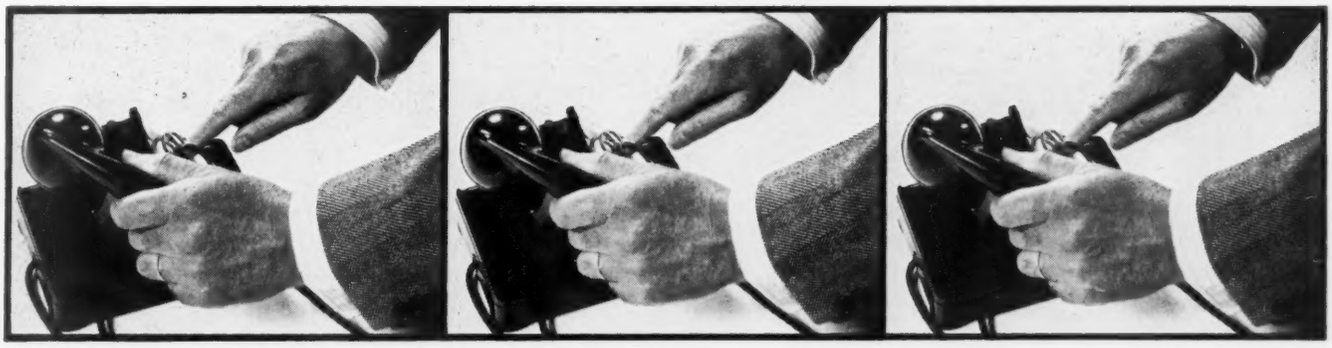
WORTH WRITING FOR

WRITE SMALL BUSINESS ADMINISTRATION. Lafayette Bldg., Washington, D. C. for free copies of: (1) Management Aid 70-"Record Retention In Small Business"; (2) Technical Aid 41-"How Good Housekeeping Practices Will Increase Production"; (3) Small Marketer's Aid on "Why Small Business Owners Need Sound Wills."

WRITE ANDREW CORP., 363 E. 75th St., Dept. TE&M., Chicago 19, Ill., for copy of 100-page catalog containing product description and engineering data on antennas, antenna systems and transmission equipment. 20 pages of catalog are devoted to system engineering data of value to communications engineers.



Not NINE calls–



ONE does it!

Picture the Independent Telephone Industry without the telephone supply distributors: You are planning additional plant. Without the Distributors you would have to contact each manufacturer for each kind of item required. You would have to check data, prices, delivery, with each manufacturer . . . Now, what does the Distributor do for you? One call brings you information on the various lines he carries. You get his recommendations on new products. You call him for on-the-spot service in emergencies, to rush a vital replacement. Yes, one call to the Distributor brings you information about many lines, speeds deliveries from many manufacturers, gets fast service on many problems. How much effort, time, and money does he save for you?

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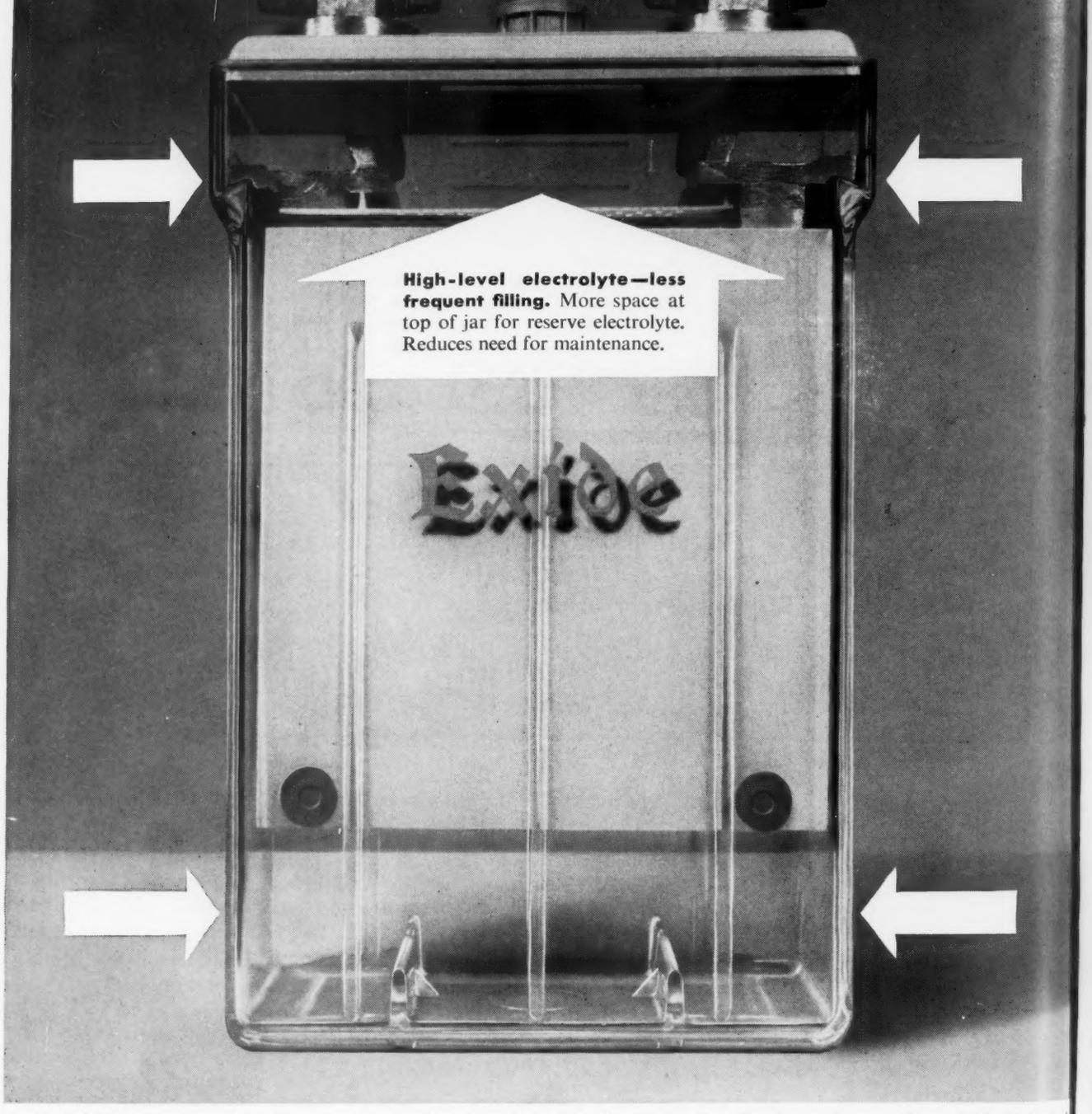
THE NEW EXIDE-

Design advances increase capacity,

Suspended plates. See those ledges molded into the jar walls. That's where the plates rest—suspended from the top instead of being supported on the bottom. Both positive and negative plates hang free in the electrolyte.


High-level electrolyte—less frequent filling. More space at top of jar for reserve electrolyte. Reduces need for maintenance.
Exide

Look at this huge electrolyte reservoir at the bottom of the jar. Even in the heaviest cycling service, sediment can never short the plates. Extra electrolyte maintains high specific gravity even when the charge is 'way down. This feature is especially advantageous in countless applications where batteries are exposed to low temperatures.

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life potential, and range of uses

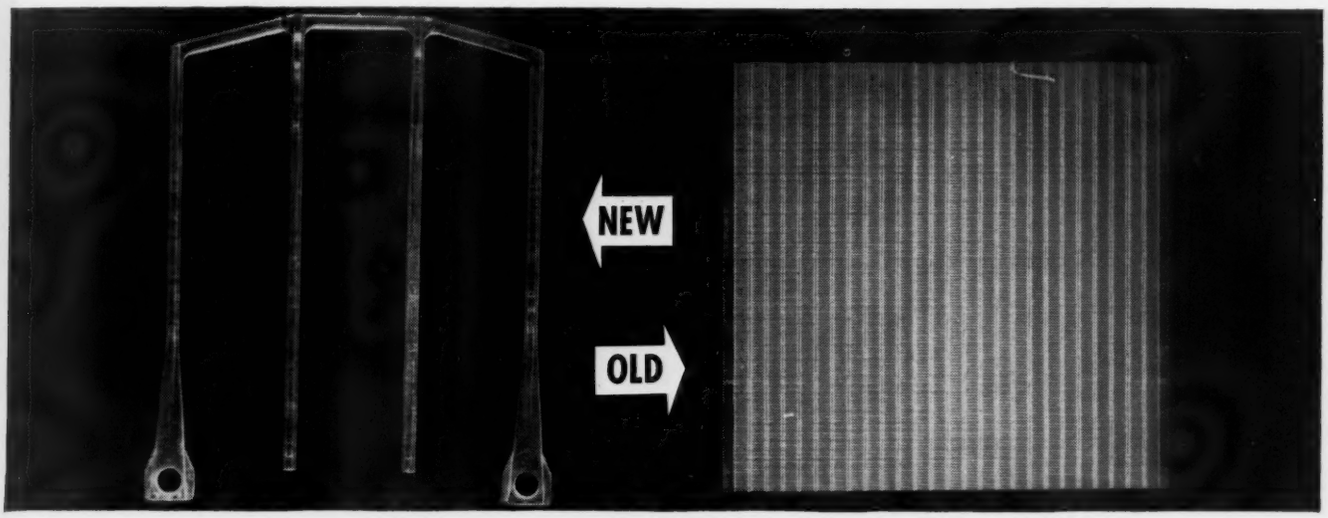
Trust Exide to make the world's most famous long-life battery even better.

In developing this completely new Exide-Manchex Battery, Exide engineers tackled the toughest battery problems that were yet to be solved. As a result, they not only improved the performance capabilities of the Manchex in floating service, but also qualified it for cycling service applications.

Here in one giant step forward, the Exide-Manchex Battery has moved years more ahead of every other battery in its field. Now it offers you even more value for your money, and even greater assurance of dependable performance all the years you use it.

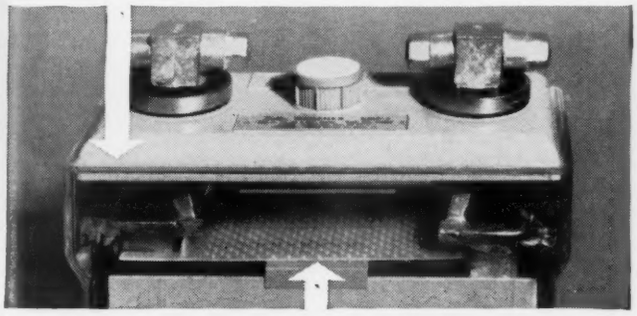
Be among the first to get complete information on this new Exide-Manchex Battery. Call your regional Exide representative. Or write Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 2, Pa.

Exide®

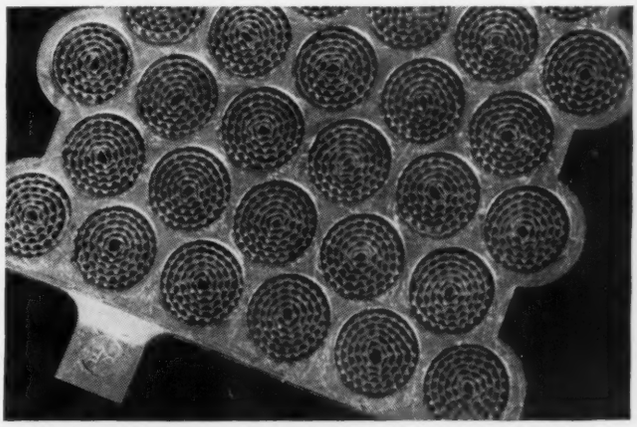


New open separator helps boost capacity. Sudden demands for battery power set positive plates to drinking up electrolyte in huge gulps—hard to do through dense separators. But this new open separator, combined with the high porosity microporous separator, gives every positive plate more elbow room. Electrolyte is free to flow to the plates more readily, more rapidly. Internal resistance of the battery is reduced. Battery capacity increased.

Improved plastic cover sealer. Special new sealer never dries out or cracks open. Welds cover to jar. Forms airtight, liquid-tight seal against leakage. Easily removed if necessary. Sealed-ring construction around posts prevents acid leakage.



Protection for separators. New plastic screen protects separators from damage during maintenance and testing; protects against foreign materials dropped into cell.



Exclusive Exide-Manchex positive plate. Pure lead spiral buttons are held tightly in sturdy grid. Act like shelves for oxide. Huge reserve lead-supply in buttons maintains capacity and stretches battery life.

AT&T Slates $2.1 Billion Plant Outlay: 31% Boost In Capital Expenditures For 1956

AMERICAN Telephone & Telegraph Co. plans to step up its capital expenditures this year about 31 per cent above 1955 spending to a record $2.1 billion, Cleo F. Craig, president, told the annual stockholders meeting last month.

This would make the Bell System account for about 6 per cent of the country's entire capital expenditures which businessmen have told the Securities and Exchange Commission total $34.9 billion in 1956. Last year AT&T spent $1.6 billion on expansion.

Barring unforeseen developments, there will be 50 million Bell telephones in service by next year, compared to 47 million now in use.

Mr. Craig spoke to a full house attendance of about 3,000 stockholders in the newly constructed auditorium at 50 Verick Street, New York City, in the building which houses the company's voluminous corporate stock records.

In contrast to previous years when far fewer stockholders jammed into a smaller auditorium, accommodations were more than ample. Mr. Craig, parrying barbs with stockholders, repeated his feat of previous years of remaining standing throughout the entire session.

With so large a group of listeners, the number of stockholders anxious to present their personal views before the group kept the meeting in session until well after dinner time.

Long distance business continues to show a healthy increase, Mr. Craig said. This is only partly due to an increase in telephones, Mr. Craig said, but the company is pushing long distance usage by going out and selling it.

Aside from the gigantic expansion program the most important decision announced at the recent annual meeting of American Tel. & Tel. Co., stockholders, was the management's ruling against any stock split.

Thus the company's long established policy on this subject was reaffirmed. However, this time its position on the matter was stated differently.

President Craig informed the assembled stockholders that the management was against stock splitups, because it did not intend to become a party to any action which might precipitate fluctuations in the firm's stock. And he maintained that such actions have caused such trends to materialize in the affected issues.

Craig offered these observations:

"We have watched what happens to companies who split their stock. When the stock split is announced the stock goes up and there is a flurry in the stock market. But if no sub-

H. J. HUETHER, JR. (right), president of General Tel. Co. of Kentucky, is pictured above presenting the 40,000th telephone to be installed in the Lexington exchange to University of Kentucky President HERMAN L. DONOVAN. Simulating the University colors, the telephone is blue and white, two-toned..—*Lexington Herald-Leader photo.)*

Tele-Views

When the Grand River Mutual Telephone Corp. converted its Princeton, Mo., exchange to dial, the Princeton Chamber of Commerce recognized the advent of good telephone service by having a ceremony at the High School. State Senator James P. Kelly acted as master of ceremonies and the main address was given by E. C. Weitzell, Head of Telephone Operations and Loans Division, Rural Electrification Administration. The ceremonial first call was made by Mayor B. I. Axtell to Governor Phil Donnelly. Traffic Department personnel (left photo) recognized at the ceremony (l to r)—MARY LINDSEY, operator with almost 30 years service; RUTH PIXLER, assistant chief operator with 14 years service; and MILDRED GRIFFIN, 27 years service. Picture at right shows E. C. WEITZELL addressing the gathering.

The culmination of many months of planning and work was realized recently when the Jacksonville exchange of the Illinois Telephone Co. was converted from manual to automatic telephone service. As part of the conversation program, a new modern exchange building (left) was erected which houses the automatic switching equipment (right). The Jacksonville local offices and district headquarters are also in the new building. As part of the nation-wide long-range plan for eventual customer toll dialing, the Jacksonville exchange has been designated as Chestnut.

New Southeastern Telephone Co. exchange building at Fort Walton Beach, Fla. is air conditioned and has a drive-in window for subscribers who want to pay their bills after office hours.

stantial dividend increase goes along with the split the stock goes down within a few months and in almost every case it goes below where it was before the split."

These were the arguments advanced this time against a split of AT&T shares. On former occasions the management's position was presented differently.

Previously when urged by shareholders to split its shares to bring the price down to a level where it might obtain more stockholders, spokesmen for AT&T have replied that since it had more shareholders than any other U. S. corporation, such policy was not necessary.

The same status still prevails for AT&T—yet this time a different reason for rejecting the suggestion of stockholders that there be a stock split was given. The management didn't want to adopt a policy "merely for the purpose of pushing our stock up and down in the market."

Stockholders of AT&T were jolted with another piece of news released at the annual meeting—a dividend boost is not in sight. President Craig expressed sympathy with the desires of some holders for a hike in dividends, but he added, "the trouble is not with the $9 dividend rate which has been in effect since 1922—it is that we in AT&T are not able to put aside as much in undistributed dividends, as we should."

Then he noted that such retained earnings of AT&T amount to only $19.99 a share or only enough to protect the company's dividends for two years and two months. In contrast he noted that electric utilities generally retain enough of their earnings to protect dividends for three and a half years and manufacturing firms like General Motors and General Electric keep enough of their profits to assure their dividends for seven and a half years.

AT&T's retained earnings must be built up, Craig maintains.

Construction Starts On New Hodgenville Ky., Bldg.

WORK STARTED recently on the new automatic telephone exchange building at Hodgenville, Ky., by the Southern Continental Telephone Co., when Mayor Claude Cundiff, turned the first shovelful of dirt on the new building site.

Those present to witness the "Ground-Breaking" were: Judge Dalph Creal, County Judge of Larue County; Clayton Owens, city councilman; Norman Marcum, president of the Hodgenville Rotary Club; Homer J. Wright, vice president & general manager and Charles Baugh, district manager, both of Elizabethtown, representing Southern Continental.

The new building will be completely fireproof and will house 400 lines and 900 terminals of automatic central office equipment. In addition to housing the central office equipment, the new building includes an equipment maintenance and repair shop and a one-car garage.

Mr. Baugh stated the new building is only one phase of the company's plans for the installation and expansion of the new telephone system, and overall plans provide for the installation of new cables throughout Hodgenville, the installation of a cable a distance of 11 miles from Hodgenville to Elizabethtown; the extension of new lines and cables into the rural areas of Larue County, and

Participants in "ground breaking" for Southern Continental Tel. Co.'s new building at Hodgenville, Ky., are (l. to r.):—HOMER J. WRIGHT, Elizabethtown, vice pres. and gen. mgr., Southern Continental Telephone Co.; CLAYTON OWENS, City Councilman and Mayor CLAUDE CUNDIFF of Hodgenville; NORMAN MARCUM, pres.,—Hodgenville Rotary Club; CHARLES BAUGH, Elizabethtown, dist mgr.; Judge DALPH CREAL, County Judge of Larue County.

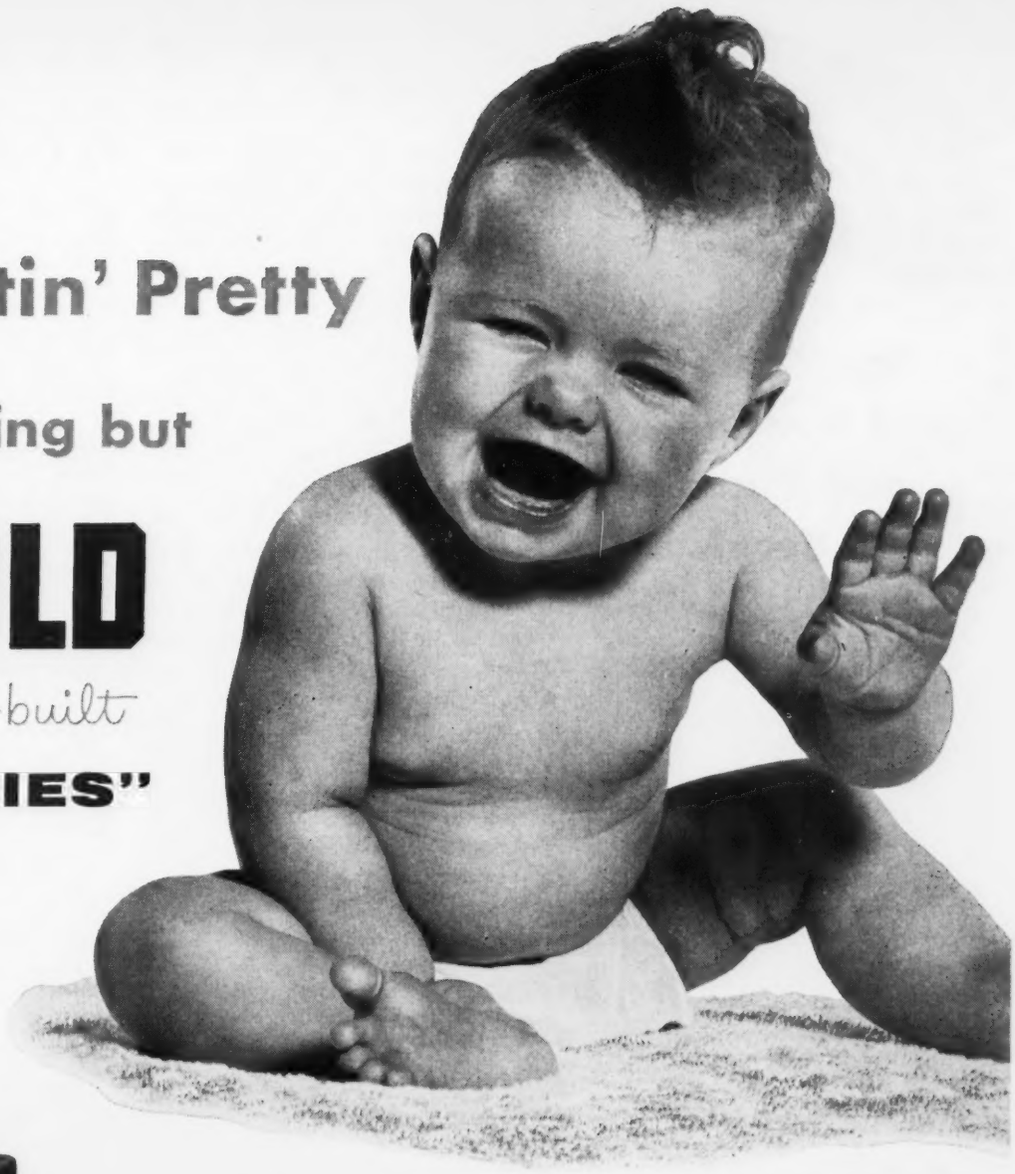
"I'm Sittin' Pretty

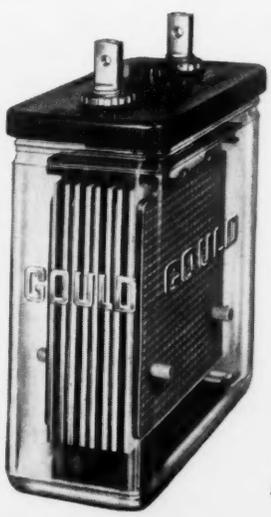
use nothing but

GOULD

Research-built

BATTERIES"





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The Aristocrat of
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There are three big reasons why it pays to choose Gould Research-Built Batteries:

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2. Strategically located Gould plants assure prompt attention to your battery requirements.
3. Gould Field Engineering Service, finest in the industry, nation-wide in scope, is as close to you as your telephone, always ready to see that your batteries are properly cared for and maintained . . . that you get maximum battery performance.

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Dependable Power

for Years-
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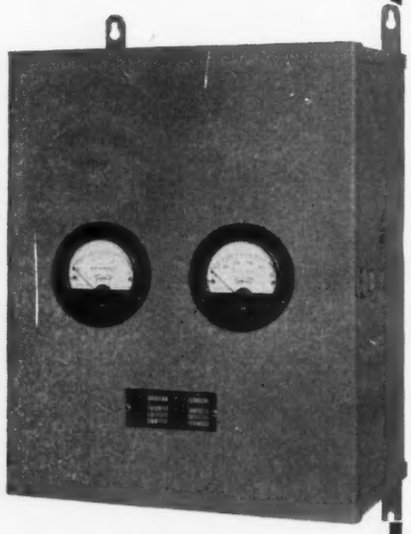
of Service!



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BATTERY ELIMINATORS
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In sizes and capacities to meet every telephone power requirement.

See your Schauer Jobber.
Write for Bulletin 4516.

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SCHAUER
MANUFACTURING CORP.

4516 Alpine Ave., Cincinnati 36, Ohio

the replacement of all telephone instruments with the latest, most modern type of automatic (dial) telephones.

The overall cost of the entire expansion program, Mr. Baugh said, will be approximately $175,000 dollars. Manager Baugh said scheduled plans called for the building to be completed by June 1 and that other work which is now in progress, should be completed in time for the new system to go into service during September or October of this year.

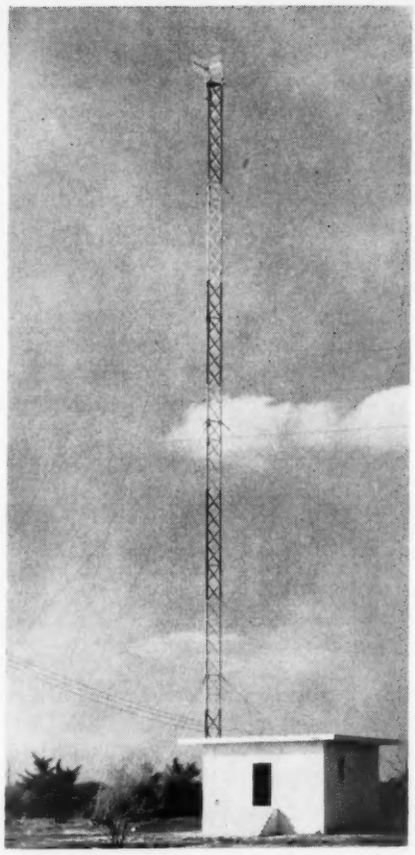
Ocracoke Island Gets First Commercial Telephone Service

ANOTHER communication frontier has been opened up with the establishment of the first commercial telephone service to Ocracoke Island 20 miles across Pamilco Sound from the mainland of North Carolina.

Since the beginning of time, this stretch of water had been a barrier to communication for the people of Ocracoke. All that ended when the Carolina Telephone & Telegraph Co., placed in service a radio telephone system to the island and its 550 inhabitants. The island, which is approximately two miles wide and 18 miles long, is just south of Cape Hatteras. Until the new facilities were installed, the only communication with the mainland was by the Coast Guard.

The new system was placed in operation when Stanley Wahab, a well known resident of Ocracoke, called North Carolina Utilities Commission Chairman Stanley Winborne at Raleigh.

J. F. HAVENS, vice president, Carolina Telephone & Telegraph Co. (left), with STANLEY WAHAB, long time resident of Ocracoke Island as they make first call to North Carolina mainland to inaugurate service over commercial telephone facilities. Advent of telephone service is expected to give a boost to island's economic life.



150-foot radio tower at Englehard, N. C. office of Carolina Telephone & Telegraph Co. designed to withstand winds up to 126 miles per hour.

Praising the telephone company for establishing the new service, Mr. Wahab told the commissioner that telephone service to the islanders would be "priceless." Then he added "Seafood dealers are now for the first time in touch with outside markets in a matter of minutes. Tourists, sport fishermen and wildfowl hunters may get current information easily and quickly. This service will put some extra money in the pockets of our citizens."

In acknowledging the inaugural call, Chairman Winborne agreed, adding that "The welfare of Ocracoke Island has moved another step forward and I join you in commending Carolina Telephone & Telegraph Co. for providing this service."

The new telephone circuits are derived by channelizing the radio path with a Lenkurt Type 33-B carrier system. This provides the three separate conversation channels between the island village of Ocracoke and Engelhard on the North Carolina mainland.

From Engelhard, where Type 11

Growing up – *together*

In 1897, independent telephone companies, sprouting up at an amazing rate, banded together to form their first association. That same eventful year, Kellogg Switchboard and Supply Company was also born.

For 58 years now, Kellogg and Independent Telephony have been growing up together — companions dedicated to meeting the nation's demand for more and better telephone communication. Their close relationship did much to overcome the tremendous odds that faced the young Independent during the pioneering days of the telephone industry. This same cooperative spirit is helping to improve and advance the Independent Telephone Industry as a major force in American business life today.

Kellogg's contributions have been the methods and devices for improving the Independent's service to its customers. Many have become Telephony's most important achievements—"four-frequency" harmonic systems, cradle type telephone instruments, straightforward trunking, and most recently, Kellogg was first to develop and produce Crossbar for Independents. It is this kind of scientific development that will help Kellogg and Independent Telephony grow together in the future as they have in the past.

KELLOGG
A DIVISION OF
I T & T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
A Division of International Telephone and Telegraph Corp.
Sales Offices: 79 West Monroe Street, Chicago 3, Illinois

KELLOGG— first with CROSSBAR for the Independent

coming CONVENTIONS

ILLINOIS:—Hotel Pere Marquette, Peoria, May 16-17.

WISCONSIN: Loraine Hotel, Madison, May 23-24.

PENNSYLVANIA: — Bedford Springs Hotel, Bedford, May 22 and 23.

WASHINGTON-OREGON: Hotel Multnomah, Portland, Ore., May 31, June 1-2.

KANSAS-MISSOURI: — Town House, Kansas City, Kans., June 4 and 5.

CALIFORNIA: — Fairmont Hotel, San Francisco, June 6, 7 and 8.

NEW YORK:—Scaroon Manor Hotel, Schroon Lake, June 11, 12 and 13.

MAINE, NEW HAMPSHIRE & VERMONT: Farragut Hotel, Rye Beach, N. H., June 19, 20 and 21.

MICHIGAN: — Pantlind Hotel, Grand Rapids, Sept. 6-7.

ARKANSAS:—Arlington Hotel, Hot Springs, Sept. 17-18.

ROCKY MOUNTAIN: — Utah Hotel, Salt Lake City, Utah, Sept. 20-21.

NORTH CAROLINA:—Carolina Hotel, Pinehurst, Oct. 4 and 5.

USITA: — Conrad Hilton Hotel, Chicago, Oct. 15-16-17.

VIRGINIA—W. VA.:—Roanoke Hotel, Roanoke, Va., Nov. 1 and 2.

S. CAROLINA: — Clemson House, Clemson, Nov. 5-6.

Automatic Electric dial switching equipment has been installed, telephone messages are transmitted over land lines to Washington, N. C. and from there to any telephone in the outside world.

The Engelhard central office is housed in a new building constructed to withstand hurricane winds and afford protection against high water. A permanent emergency generator has been installed for use in event of commercial power failure.

The 75-foot tower at Ocracoke and the 150-foot tower at Engelhard are designed to withstand winds up to 126 miles per hour. The Engelhard tower was constructed and designed for possible future radio additions in the area.

Only long distance service is available to the public at present via the three Ocracoke telephones now installed, but a 100-line Strowger step-by-step MAX is being installed in the coming months to provide local service.

General Stockholders Hold Annual Meeting

THE ANNUAL Meeting of General Telephone Corporation's shareowners was held at the Biltmore Hotel, New York City, last month. Directors elected for the ensuing year were: Thomas A. Boyd, Harold F. Bozell, Edwin F. Chinlund, Nelson J. Darling, Jr:. Robert A. Gantt, Theodore S. Gary, George E. Jones, Herbert L. Nichols, Donald C. Power, F. S. Spring, Russell B. Stearns and Gardiner Symonds.

The shareowners approved a proposal to reduce the capital of the corporation from time to time, by an amount equal to the excess of the capital represented by converted 4.25% Convertible Preferred Stock over the capital required to cover the par value of the Common Stock issued upon conversion.

Management's proposal to increase the number of shares of Common Stock reserved for issuance under the Restricted Stock Option Plan from 225,000 to 450,000 was approved by shareowners.

Also voted on favorably by shareowners was the proposal to increase the number of shares of authorized Common Stock from 15,000,000 to 20,000,000.

The shareowners approved a proposal to issue up to $55 million principal amount of convertible debentures to be convertible into Common Stock on terms to be determined by the Board of Directors and to be offered pro-rata to the owners of the Common Stock for subscription at their face amount upon such terms and conditions as may be determined by the Board.

At the organization meeting held immediately after the Annual Meeting, the following officers of the corporation were elected: Donald C. Power, president; Thomas A. Boyd, vice president; Theodore S. Gary, vice president; Frederic E. Norris, vice president; Ralph D. Heusel, vice president and treasurer; Robert F. Briggs, secretary; H. H. Howlett, assistant secretary; Raymond E. Dolar, controller; John B. Renwick, assistant controller; Sherman C. Wilcox, assistant secretary and assistant treasurer.

Charles J. Fain Appointed Assistant to REA Administrator

APPOINTMENT of Charles J. Fain of Branson, Mo., as assistant to the administrator of the Rural Electrification Administration was announced last month by the U. S. Department of Agriculture.

For the past two years, Mr. Fain has been associated with the National Rural Electric Cooperative Association in Washington, D. C., first as legislative assistant then as assistant general manager.

Before joining the staff of the cooperative association, Mr. Fain practiced law in Branson. His background includes four years in the Missouri State Legislature where he served as Speaker pro tem and four years in the U. S. Air Force during World War II. He is 36 years old and a graduate of the University of Missouri Law School.

Toll Cheaters To Lose Phone Service

THE ILLINOIS Bell Telephone Co. acquired a weapon against firms suspected of cheating on long distance toll charges by use of codes when the Illinois Commerce Commission authorized the company to suspend service of any subscriber trying to beat the toll costs.

Edward W. Melcher, commission telephone engineer, said Bell officials

(Please turn to page 42)

Guard your splices right with these

REG. U. S. PAT. OFF.

SCOTCH Electrical Products!

BRAND

Approved for splicing plastic communications cable

"SCOTCH" Brand Plastic Tapes—the *original* plastic tapes. First developed and perfected in our own laboratories. Made to exacting quality standards. Tough, impervious vinyl plastic. Two thicknesses available: 7 mils (No. 33—the standard of all plastic tapes) and 10 mils (No. 22—for extra abrasion resistance).

"SCOTCH" Brand Aluminum Tape — has special adhesive to insure an effective moisture barrier. "SCOTCH" Electrical Tape No. 49 is available in 2 inch by 20 foot rolls.

"SCOTCHFIL" Electrical Insulating Putty —a putty in tape form. Application is clean, rapid, economical. Excellent as a fast build-up for cable splices. Long life, stays firm and flexible, doesn't dry out or become hard and brittle.

"SCOTCHCAST" in "Unipak" Container—casting resin and hardener in plastic double bag. Knead to break inner bag and mix hardener with plastic, then pour. Sets in a few minutes, provides a perfect moisture seal. Makes impervious moisture blocks in cable ends. Especially recommended for splicing lead sheathed cable to plastic sheathed cable.

Above products are approved for use in REA splicing procedures PC-2 and PC-3. Available at your wholesaler. Further information and copies of splicing procedures will be sent free on request. Write Dept. MI-56, Minnesota Mining and Manufacturing Co., St. Paul 6, Minn.

The term "SCOTCH" and the plaid design are registered trademarks of Minnesota Mining and Manufacturing Company, St. Paul 6, Minn. Export Sales Office: 99 Park Avenue, New York 16, N.Y. In Canada: P.O. Box 757, London, Ontario.

ATTENTION "Growth

AT&T to Spend Record $2.1 Billion on Expansion in '56; No Stock Split or Dividend Hike Planned, Says Craig

President States Bell System Expects to Have 50 Million Phones in Service in 1957

By a WALL STREET JOURNAL *Staff Reporter*

NEW YORK—The Bell Telephone System plans record outlays for new construction this year of more than $2 billion, Cleo F. Craig, president of American Telephone & Telegraph Co., told the annual meeting.

At the same time, Mr. Craig said the company plans no stock split or boost in the annual dividend.

New construction by the Bell companies in 1956 will amount to slightly more than $2,100,000,000, or $457 million above the record $1,643,000,000 the company spent in 1955. This is the first time an American company ever has spent more than $2 billion on expansion in a single year.

At one of the longest annual meetings in recent memory, lasting five hours and 52 minutes, Mr. Craig firmly rejected stockholders' pleas for a stock split and a boost in the annual dividend.

Dial System Being Installed at Beach

C. and P. Telephone Report Reveals Record Construction

Company Spends $31,000,000 for New Facilities, Anticipates $40,000,000 Before End of 1956

The 1955 annual report of the C... phone Company of Vi... struction pro...

Will Be Constructed This Year

Underground Cable Installation Highlights Phone Firm Plans

The installation of an underground 1,212-pair cable from the ... nt ... off... al ... as ... w ... n- ... ne ... on ... ng

Stanhope Okays Dial System

...anhope's dream ... e system was a ... today follow- ... pproval of plans ... n given Thurs- ... of stockholders. ... held at 1:30 p.m. ... mmunity build- ... members invit- ... ness meeting ...

ber about 200 of roughly 1½ per cent of total stations.

Telephone company customers were informed recently by a bill insert of a new method of billing toll charges undergoing adoption, officials pointed out.

Under the new system the subscriber receives not merely a list of places called and the charges applicable, but he will get ... toll tickets made out ... completing the ... these tickets ... of all ... ying

Telephone Co. Plans $500,000 Modernization And Expansion Program; Increase In D...

The McLeod Co... Pioneer Syst... prog... is... D... be... Te... pro... imp... buil...

Jonesburg Telephone Co. Expands

JEFFERSON CITY, March 2... —The Wright City and Jonesbu... Telephone Co. today was authori... ed to buy the Montgomeryville Tele...

Eagle Lake Telephone Co. Plans Expansion

Annual Meeting of Stockholders Name Two Directors

...lephone Co... of ... complete engineerin... facilities in the Mc... ent is now prepari... ization. Rural se... aintenance, and ... ines with a m...

Sully-Buttes Receives Big Loan For Expansio...

* * *

The Sully Buttes Telephone Coop. Inc., already one of the largest in the Midwest, acqui... more rural ... ...changes in Wright City, ...ton and Jonesburg, all in ...mery and Warren Co...

Minded" Sales Managers

READ THIS

14 THE WALL STREET JOURNAL
Thursday, April 19, 1956

General Telephone Says 1956 Net May Top $2.82 A Share, Up From $2.63

By a WALL STREET JOURNAL Staff Reporter

NEW YORK — General Telephone Corp.'s earnings for the calendar year 1956 were estimated at $2.82 a share or better by Donald C. Power, president, at the annual meeting. "Personally," he added, 'I think we will beat $2.82." For 1955 the company reported earnings of $2.63 a share.

Noting an increasing demand for telephone service, Mr. Power forecast an increase this year in telephones on General's lines of more than 200,000 to bring the total to better than 2,800,000 at the end of the year.

Over the next five years, the head of the country's largest independent telephone system said, General expects to spend some $500 million on new facilities. Its expansion budget this year, originally set at $133 million, is now running at a pace better than $140 million, the speaker said.

Wyoming To Have Dial Telephones

Special to The Gazette.

WYOMING — Stockholders of the Wyoming Mutual Telephone Company Friday voted 41 to 19 to convert to the dial system.

Nelson Brownell, president of the board of directors, said articles of incorporation will be changed and that stock will be issued to finance the

Memphis To Get New Dial System in 1957

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Cokeville Telephone Loan is Approved

Word from Washington day was to the effe

Telephone Company to Build $1 Million Valley Exchange

Construction Scheduled to Start May 1; Plan to Put Plant In

Upper Valley Exchange on Sunset and ex-

Telephone Co. Will Spend $3,627,000 In Area this Year, Says Local Manager

exchange

The building

anticipates spending approximately provided in
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will be the tenth
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Others are the main
0 Texas street, East
Aurora street, North
Mountain View
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DeKalb-Ogle Begins $190,000 Dial Phone Building in Genoa

Construction is now underway on the new DeKalb-Ogle Telephone Company building in Genoa. The foundation has been poured for the modern, one-story edifice located on the northeast corner of Jackson and Streets.

The building, which brick construction, is e be completed in June major step in the dial of the Genoa exchang plans call for the cu dial to take place in th of 1956.

The structure will occupy 1,880 square feet and will contain the dial equipment room, public business office, storage rooms, rest rooms and a vestibule. It is plan-

Telephone Co. Plans Dial System for Janesville in 1957

G. E. Rohe, vice president and general manager of Minnesota Co an co

C&P Authorizes $6,907,210 Expenditure

March 31, 1956

Expenditures of $6,907,210 for expansion and improvement of telephone facilities in Virginia was authorized yesterday by the board of directors of Chesapeake and Potomac Telephone Com-

Southwestern States In Rapid Growth With Area Expansion On the March

COTTON
Serviceable for all around uses. Standard everywhere.
NYLON
Smooth texture, easy to handle. Preferred for switchboard use.
NEOPRENE
Very popular because easy to keep clean. Moisture and grease proof.

Runzel

CORDS

the WORLD'S FINEST

...for every purpose!
...for every instrument!

Take your choice—Neoprene, Nylon or Cotton. They're all high quality cords made in accordance with Runzel high standard of quality. We carry large stocks of cords to meet every need. Our geographical location means Quick Service.

RUNZEL CORD & WIRE CO.

4723 W. MONTROSE AVE. • CHICAGO 41, ILLINOIS

(Continued from page 38)

testified some companies "made no bones" about cheating and said there were no regulations to stop them. Bell officials estimated the practice costs the company between $300,000 and $400,000 annually.

Melcher said the abuses generally take this form: the caller places a call to his company's headquarters, usually in Chicago, and asks for a non-existent person on a person-to-person basis. The name chosen poses an inquiry in code to the company "Mr. so-an-so isn't here," the operator is told, "but he will be back Wednesday."

Thru pre-arrangement, when the caller is told this, he cancels the attempted person-to-person call and understands that he is to report to his headquarters Wednesday. Because the call was not completed despite the operator's time and effort, the cost is usually borne by the Bell company, Melcher said.

In intrastate calls, Bell sometimes gets 10 cents on a $1 operation for such attempted calls.

Melcher estimated that some firms have as many as 3,000 or 4,000 code calls a month.

Telephone officials said many times such code methods are used to give receivers information about the time of arrival of merchandise on order. Collection and sales agencies sometimes use codes, they said.

Marshall Taylor Named To California Advisory Board

APPOINTMENT of Marshall K. Taylor, secretary and attorney for General Telephone Co. of California in Santa Monica to a special advisory board of the California State Industrial Welfare Commission has been announced. He will represent industry on the board which is to make recommendations as to possible changes in rules affecting employment conditions for women and minors.

The commission is considering the need of revising its rules governing wages and working conditions. Members of the special advisory board are to hold hearings in June with emphasis on technical, professional and clerical positions.

Taylor, an executive with General Telephone Co. of California since 1942, has held positions as general agent and personnel manager as well as his current function as secretary and attorney. He recently resigned from the Santa Monica Planning Commission in order to give full attention to his new appointment.

MARSHALL K. TAYLOR

A graduate of Stanford Law School in 1935, Taylor represented the Sacramento Municipal Utility District as assistant attorney before joining the staff of the General Telephone Company. He also served with the California Railroad Commission, now known as the California Public Utility Commission.

Iowans Form New Telephone Company

A CORPORATE charter has been granted to the Iowa Independent Telephone Co. This new corporation was brought about to assist the telephone companies in Iowa that are desirous of modernizing their property but lack the necessary know-how and capital.

In forming this new company, the incorporators considered the changes that have taken place in the telephone industry during the post-war years. Dial service, toll dialing, carrier and microwave have created a need for a highly technical type of maintenance and specialized supervision not readily available to many small companies.

Taxes and legislation have created accounting problems. Recent increases in the minimum wage and the possibility of the industry losing the 750-station exemption have brought new operating problems to many small companies. The operation of a successful telephone business that will

meet the public demand for modern service has constantly become more complex, with each phase of the business becoming highly specialized.

This new company will provide supervision and the know-how plus the capital to even the very smallest telephone company in Iowa that wishes to modernize or expand its telephone system.

Each of the 14 incorporators has had many years experience in the telephone industry and is presently operating telephone property.

The following is a list of the incorporators:

E. C. Carlson, manager, Creston Mutual Telephone Co., Creston.

A. C. Kelley, plant superintendent, Farmers Mutual Telephone Co., Clarinda.

Gene Daubendiek, president, Telephone Construction, Inc., Jefferson.

Wm. C. Daubendiek, plant superintendent, Jefferson Telephone Co., Jefferson.

Earl G. Bellamy, manager, Bellamy Telephone Co., Knoxville.

James M. Bellamy, purchasing agent, Bellamy Telephone Co., Knoxville.

C. C. Pearce, manager, Farmers' Telephone Co., of Riceville, Riceville.

Ross K. Vernon, manager, Mutual Telephone Co., of Sioux Center, Sioux Center.

H. Filmore Melick, manager, West Liberty Telephone Co., West Liberty.

H. B. Melick, West Liberty Telephone Co., West Liberty.

A. L. Kelley, manager, Farmers Mutual Telephone Co., Clarinda.

Harold Thompson, manager, Clear Lake Independent Telephone Co., Clear Lake.

J. L. Trevillion, manager, Lucas County Telephone Co., Chariton.

Clarence Henry, accountant, Creston Mutual Telephone Co., Creston.

The officers of the corporation are: A. C. Kelley, president; Gene Daubendiek, vice president; Ross K. Vernon, secretary-treasurer.

The business address is: 105 W. Harrison, Box 267, Jefferson, Iowa.

Citizens Utilities Advances L. L. Thomas, Jr.

L. L. THOMAS, JR. has been named general commercial manager of Citizens Utilities Company of Calif., according to D. H. Steele, vice-president. Mr. Thomas joined Citizens in October, 1955 and is now directing all the traffic and commercial department activities of this company. He was formerly manager of the DeKalb (Ill.) Ogle Telephone Co.

Mr. Thomas represents the third generation of his family active in the telephone business. A. J. Parsons, former secretary of the Illinois Telephone Association, is his grandfather. His father, L. L. Thomas, Sr., is now division staff member of the Illinois Bell Telephone Co.

A veteran of World War Two, Mr. Thomas also graduated from the University of Illinois and is a member of Sigma Alpha Epsilon Fraternity and Sachem Honor Society.

E. B. Rhodes Dies

E. B. RHODES, 70, died at his home in Fordyce, Ark., March 31.

An outstanding civic worker, he was serving his 34th consecutive year as secretary of the Fordyce Masonic Lodge, and was a board member of the Chamber of Commerce.

Mr. Rhodes had devoted more than 50 years to the promotion of the telephone industry and at the time of his death was general manager of the Home Telephone Co., Fordyce.

The Union Telephone Co. at the Owosso (Mich.) Builders Show gave a demonstration of how automatic telephone dial equipment operates. The show was sponsored by the Junior Chamber of Commerce with 37 area merchants and businessmen participating. The automatic dialing demonstration using a hands-free telephone was an outstanding success and one of the best attended exhibits. The Union company also exhibited an Electronic Secretary, colored monophones and a display of the various sizes of cable and and types of telephones.

The first burro to reach the next pole will hardly set a record for long distance racing. But, because this line is strung with Amertel 135, the next pole is a long way off.

Since it permits longer spans, high-strength Amertel 135 cuts the cost of pole installation and maintenance. You don't have to dig so many holes, and you don't have to set so many poles.

Amertel 135 has low electrical resistance and far better voice transmission qualities than BB wire.

For more information, write American Steel & Wire Division, Rockefeller Building, Cleveland 13, Ohio.

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GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS TIGER BRAND AMERTEL

TELEPHONE & TELEGRAPH WIRE

UNITED STATES STEEL

Telephone Engineer

EDITORIAL

Telephone Engineer

"People--Not Things--Make Money"

MORE AND MORE during our conversations with telephone industry members we note important changes in the traditional concept of the executive or management function. For example, thanks to the educational work performed by state and national telephone associations and the industry's trade journals, managements of large and small companies are giving more time and attention to the three primary requirements of a successful and growing telephone company operation.

These requirements are:—(1) *The development and proper utilization of the company's physical assets;* (2) *the development of personnel, attitudes and abilities, and* (3) *the development and protection of subscriber goodwill.*

Of these three essential assets — physical, human, and consumer — it is evident that the telephone industry regards the *human asset* as the most important.

This is as it should be. As we see it no business can hope to develop its physical and consumer assets unless it has developed *people* to manage each operation efficiently and with full appreciation of the policies on which the business has been built.

Bankers will loan money on physical assets and on inventories but in the final analysis the security does not lie there. Actually the true security lies in the quality of the people who man and operate the company.

The records prove the greatest mistake any business can make is to expand physically ahead of its human resources. The same records also prove the human asset cannot be bought — it must be developed.

And right there — *in the development of a company's human resources*—is, we believe the most difficult and important responsibility of today's management. Here, is the true measure of management and the ultimate answer to the job of pleasing the consumer, boosting revenues and increasing profits.

Peter Drucker recently stated the problem this way — "*The success and ultimately the survival of every business, large or small, depends in the last analysis on its ability to develop people. In that respect the business is no different than any other human institution. This ability to develop people is not measured by any of our conventional yardsticks of economic success; yet it is the final measurement. Increasingly from here on this ability to develop people will have to be organized in business and will have to be systematized by management as a major conscious activity and responsibility . . . .*"

Attention to the *problem of developing people* was never of more importance. With expansion of the telephone industry and mergers of small units with large units it is no longer possible for top management to be every place at once to exercise the old "on-the-spot" type of supervision. These changes have created the necessity for placing authority, responsibility and accountability ever closer to the job.

This in turn has created two by-products:— (1) an ever-increasing need for better people, better trained in the arts and techniques of good management; and (2) increased attention to the human side of the business.

This realization of the importance of the human asset of the business is one thing we believe will enable the industry to meet its expanding leadership requirements.

The constant attention of more managers to the important job of developing people is encouraging. For as we see it the job of the administrator is to get things done through people and to make his concern a good place in which to work. If that job is done right a company should be successful.

Mark Hanna once put that a bit differently. He said — "*People and not things make money . . .*"

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How small can a

Styled in distinguished gray to blend with modern office furniture. Equipment cabinet measures 6′4″ high, 4′1″ wide, 2′ deep. Takes only 1176 square inches of floor space!

a complete dial PBX be?

Now you can swing many a customer over to a dial PBX more easily . . . No longer do you have to worry him about the space needed for his telephone equipment. Here, in a single cabinet, is a complete dial PBX system that needs only 8 square feet of floor space!

Mounted on casters, the F-40 XY®-PBX cabinet is no bigger than an office wardrobe. It rolls through any door, rides elevators, and stands flat against the wall.

And it's completely soundproofed, so it can stand quietly alongside people at work.

This attractive gray cabinet contains all switching and power equipment for a 40-line telephone system with up to 10 central office trunks. The attendant's cabinet, tastefully styled and no larger than a typewriter, uses keys for answering and completing calls. Attendant's telephone is matching gray.

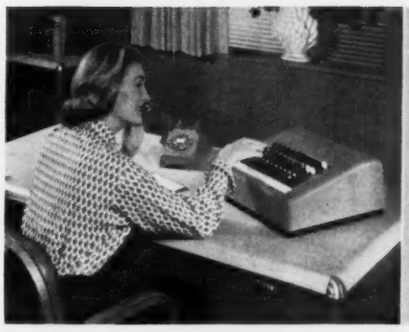
All other stations are equipped with handsome Stromberg-Carlson "1500" series dial telephones which can be black, tu-tone or color.

Besides its great appeal to the subscriber, you'll also be glad to know that the F-40 is easy to install. Roll the cabinet into place, connect wiring to the telephones and cable to attendant's cabinet, and simply plug the switchboard into any convenient electrical outlet.

Call your Stromberg-Carlson office for selling aids and further details on this revenue-boosting system.

WHAT THE F-40A XY-PBX PROVIDES:

- 24-hour dial intercommunication
- Single-party service for all stations
- Easy dialing: 1 digit to obtain trunks, 2 digits to call another station
- Restricted (non-trunk) service on selected stations
- Attractive telephones—striking colors, tu-tones, office gray or standard black
- Optional code call
- Executive right-of-way
- Night trunk connections



Cordless turret approximates the size of a modern typewriter.

Stations use standard telephones—in colors, tu-tones, gray or black.

STROMBERG-CARLSON COMPANY

A DIVISION OF GENERAL DYNAMICS CORPORATION

Sales Offices: Atlanta 3, Chicago 6, Kansas City 8, Rochester 3, San Francisco 3.

Telephone by Automatic Electric

Who needs 8½ million telephones?

Last year, the number grew by almost half a million—to serve even better the 11,000 communities, major cities, suburbs and fertile farmlands of two-thirds of the nation. For these are the telephones of America's Independent telephone companies. Increasing at the rate of one new telephone every 66 seconds!

Meeting *your* need for the dependable, low-cost communication so essential to our nation's growth.

INDEPENDENT

Independent Telephone Companies of America

United States Independent Telephone Association • Pennsylvania Building • Washington, D.C.

SUBSCRIBER LINE

Carrier Applications

By C. M. ROBERTS

FOR MANY years telephone operating companies have been faced with the rather perplexing problem of providing service to the rural areas surrounding the initial rate areas of their various exchanges in a manner that is economically attractive both to the operating company and to the prospective subscribers. These potential subscribers are usually located some distance from each other and from the nearest telephone central office by reason of residential preference or vocation, such as farming, ranching, oil business, etc.

To provide these areas with service would require construction of many miles of pole line to reach the relatively few applicants and coarse gauging of wire in order to meet transmission and supervision limits. The resulting high investment per station would necessitate the charging of rates that usually outweigh the consumer's desire for telephone service.

Several means have been utilized to reduce the per station investment in rural areas. Primary among these has been the development of the rural party line with as many as 20 subscribers per line. Further economies have been realized by the undergauging of wire and use of long-line adapters or magneto sets to increase the range of supervision, and local battery subsets to improve transmission.

Capital has been conserved in some instances by the use of grounded line adapters on single wire circuits with a ground return path.

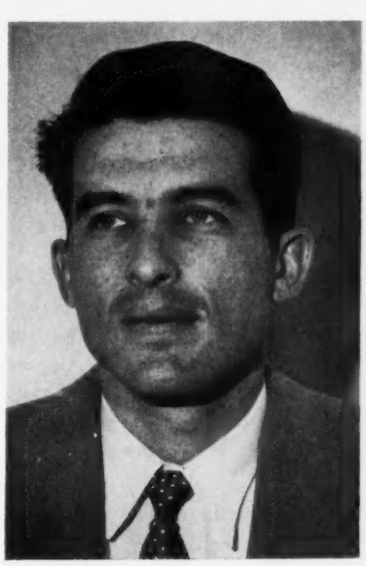
In some cases the customer pays a one-time construction charge or even builds, owns, and maintains facilities to meet existing facilities of the telephone company. There has been sufficient community interest in some localities between the rural and the urban areas so that the operating company has been able to secure adequate rates in both areas to offset the high per station investment in the rural area.

Unfortunately, none of the above schemes has resulted in a permanent solution of the rural problem. Subscribers are no longer satisfied with the grade of service offered by the rural party line. Requests for one, two, and four-party service are becoming increasingly frequent. These requests coupled with demands for semi and fully selective ringing are rapidly making the rural party line a thing of the past.

The conversion of so many exchanges to unattended dial operation has introduced numerous problems in regard to the rural plant. Extensive rehabilitation of rural lines is usually required to bring these lines within the supervision limits imposed by the use of dial rather than magneto signaling. In instances where the customer owns a portion of the circuit, he has often been unwilling to make the necessary improvements required for dial service, creating a rather unpleasant customer relation problem for the telephone company.

The rapid expansion of power company facilities into the rural districts by both private and REA companies since the war has made the use of grounded lines and phantom derived circuits impractical due to the noise problems introduced. Unforeseen rural growth in areas where urban rates were obtained to offset the expenses of rural service has either forced the telephone company to extend service at financial loss, or placed it in the embarrassing position of refusing service, depending upon the terms of the negotiations at the time the rates were secured.

The recent trend toward the decentralization of industries has created a demand for foreign exchange service and one party business service in sparsely settled areas.



C. M. ROBERTS, engineer General Telephone Co. of the Southwest.

New Developments

THE MANUFACTURERS of telephone equipment have recently developed and marketed three devices that should greatly aid the operating companies in meeting the above problems economically — the radio link, the line concentrator unit, and the subscriber line carrier.

It is not the purpose of this paper to discuss either the radio link or the line concentrator unit. However, in passing, it might be mentioned that a line concentrator unit would be useful in serving a small isolated community, and that the trunk lines for such a unit might possibly be provided by subscriber line carrier circuits superimposed on the physical control pairs.

From use in the toll plant, it is known that carrier systems can be used to derive a large number of circuits with a relatively small invest-

ment in the physical plant. This has been done economically because carrier systems are usually less expensive than toll grade wire circuits, and because of their flexibility. Due to the ease of installation and removal of carrier terminals and their high salvage value, it is practical to rearrange carrier derived circuits to meet varying traffic and grade of service requirements.

Subscriber line carriers possess the flexibility of their forerunner — the toll carrier. However, the distances and revenues involved in rural service are considerably less than those in toll service.

It follows then that for subscriber line carriers to be economically practical, they must be less expensive than toll grade carriers. This is possible as rural service requirements are less stringent, allowing the use of simpler circuits, little or no regulation, less critical filters, and in some cases, double sideband carrier transmission or frequency modulation. In this manner, the cost of a channel of subscriber line carrier has been reduced to 1/3-1/2 of the cost of a channel of toll carrier.

In addition to economy and flexibility, use of carrier derived circuits also offers the possibility of a reduction in the number of pairs required in the entrance cable which would normally be local exchange cable. The cable pairs thus relieved could be used to provide additional revenue by being placed in service within the initial rate area. Reduction in the number of open wire circuits required by the utilization of carrier derived circuits would further enhance the possibility of joint construction with other utility companies.

Use of Subscriber Line Carrier

THERE ARE quite a few situations in which the use of subscriber line carriers should be considered. First of all, there is the extension of new facilities into an area not previously served. In this case use of carrier derived circuits could possibly reduce the height of the base pole line and the size and number of crossarms as well as the amount of wire that would normally be required to provide the same service with open wire alone. Pole line mileage could conceivably be reduced by joint construction in instances where the use of physical circuits only would not normally permit joint pole usage.

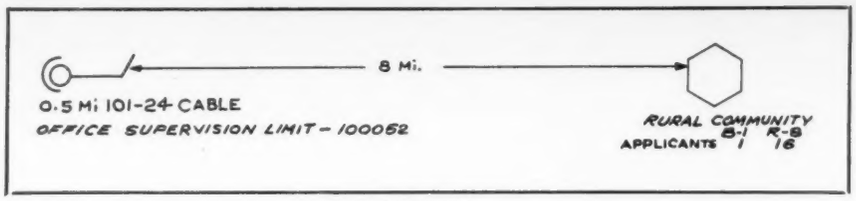


FIGURE ONE.

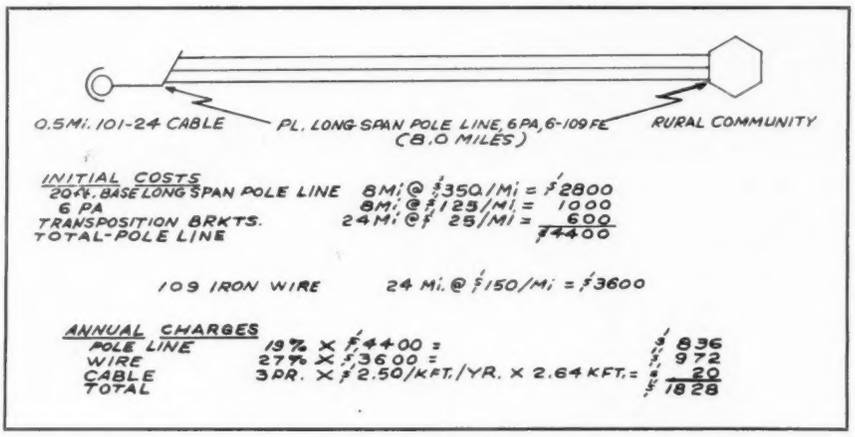

0.5Mi. 101-24 CABLE
PL. LONG SPAN POLE LINE, 6 PA, 6-109 FE
(8.0 MILES)
RURAL COMMUNITY
INITIAL COSTS
20% BASE LONG SPAN POLE LINE 8Mi @ $350/Mi = $2800
6 PA 8Mi @ $125/Mi = 1000
TRANSPOSITION BRKTS. 24Mi @ $ 25/Mi = 600
TOTAL-POLE LINE $4400
109 IRON WIRE 24 Mi. @ $150/Mi = $3600
ANNUAL CHARGES
POLE LINE 19% X $4400 = $ 836
WIRE 27% X $3600 = $ 972
CABLE 3 PR. X $2.50/KFT./YR. X 2.64 KFT. = $ 20
TOTAL $1828

FIGURE TWO.

Additions and extensions in areas already served due to requests for service or for upgrading of service, can be quite expensive in the event an additional crossarm would be required, especially if the base of the pole line must be increased to allow for the additional crossarm. Carrier systems usually prove in readily in situations such as this.

Dial conversions often require rebuilds in order to meet transmission and supervision limits. For example, a rural line composed of one half mile of 24 gauge cable and 31 miles of 109 iron wire would have a loop resistance of 2,167 ohms. Even if the line were equipped with a long line adapter, extending the supervision limit to approximately 1,800 ohms, it would still exceed the supervision limit. The remote terminal of a subscriber line carrier operating at 20 kilocycles with a gain of 35 db could be placed 16 miles from the cable terminal. The remaining 15 miles of 109 iron wire would have a loop resistance of 982 ohms. Since the subscriber terminals usually have a supervision limit of at least 1,000 ohms, signaling requirements would be met.

Quite a few factors are to be considered in determining whether certain required facilities are to be provided by means of subscriber line carrier circuits or by open wire circuits. This is primarily an economic study of the plant that would be required in each instance.

A useful tool in this study is the posting of the geographic location of existing facilities, subscribers, applicants, and the various classes of prospects on a map of the area, or a line schematic drawing laid out geographically and to scale. On this drawing the subscribers, applicants, and prospects can be grouped for line circuit assignments as it appears they will be at the end of the engineering period.

From this grouping it can be determined what facilities will be required initially to be compatible with the overall fundamental plan, and what additional facilities will be required as each step in the plan develops.

Cost Studies

THE NEXT step is to examine the several possible methods of provision, and to make cost comparisons to determine the most economical method. Cost comparisons should be made on the basis of annual charges which consist essentially of interest, depreciation, maintenance and taxes, and are usually expressed as a percentage of the initial costs. It should be noted that the annual charges used throughout this paper are assumed values, and that in actual practice the values to be used are peculiar to a specific company and project.

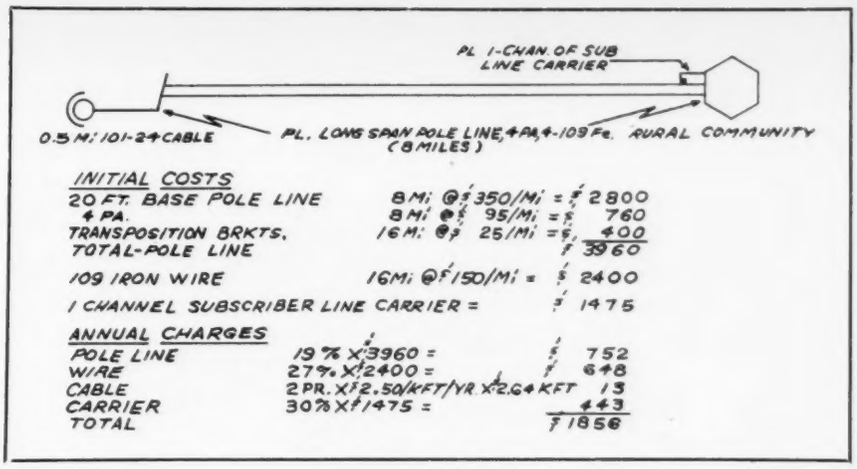
As an illustration of a cost study,

assume the small isolated community of *Figure* 1 with a requirement for three circuits. In this instance the applicants can be served by either three open wire circuits, two open wire circuits and one channel of subscriber line carrier, or by one open wire circuit and two channels of subscriber line carrier. While it is theoretically possible to use three channels of subscriber line carrier superimposed on a finer gauge wire than would be required for an open wire voice circuit, this option is not economically feasible due to the short distances involved and the use of long span construction. The first method of provision with annual charges developed is shown in *Figure* 2.

Before costs can be developed for the methods utilizing channels of subscriber line carrier, it is necessary to decide which, if any, of the various makes of carriers is to be used. The selection will depend upon the type of ringing employed in the exchange, material costs, transmission characteristics, past experience, company standards, etc. In the example being considered, assume type X subscriber line carrier has been selected, then *Figures* 3 and 4 show the remaining two methods of provision together with the applicable annual charges.

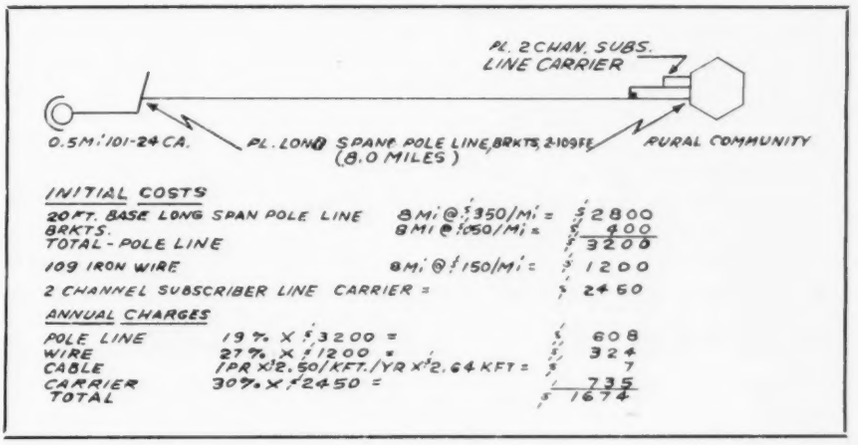
Examination of the annual charges developed in *Figures* 2, 3, and 4 indicate that the most economical method of provision is the placing of one open wire circuit and two channels of subscriber line carrier per *Figure* 4. Two pair in the local exchange cable have been conserved by the maximum use of subscriber line carrier equipment. The method of provision per *Figure* 4 offers the further advantage of flexibility in the event of an unforseen reduction in number of circuits required to the rural community. One or both channels of the carrier could be removed at a much higher salvage value and a much lower cost of removal than a corresponding removal of one or two physical circuits.

The preceding example is, of course, a much simpler application than is usually encountered in actual practice. Determination of the best method of provision can be quite complex, especially when applicants and subscribers are widely scattered. In general, it is best to locate as many subscriber terminals in one location as possible so as to reduce the num-



INITIAL COSTS		
20 FT. BASE POLE LINE	8 Mi @ $ 350/Mi =	$ 2800
4 PA.	8 Mi @ $ 95/Mi =	$ 760
TRANSPOSITION BRKTS.	16 M. @ $ 25/Mi =	$ 400
TOTAL-POLE LINE		$ 3960
109 IRON WIRE	16 Mi @ $ 150/Mi =	$ 2400
1 CHANNEL SUBSCRIBER LINE CARRIER =		$ 1475
ANNUAL CHARGES		
POLE LINE	19% X $ 3960 =	$ 752
WIRE	27% X $ 2400 =	$ 648
CABLE	2 PR. X $ 2.50/KFT/YR X 2.64 KFT	13
CARRIER	30% X $ 1475 =	443
TOTAL		$ 1856

FIGURE THREE.



INITIAL COSTS		
20 FT. BASE LONG SPAN POLE LINE	8 Mi @ $ 350/Mi =	$ 2800
8 BRKTS.	8 Mi @ $ 50/Mi =	$ 400
TOTAL - POLE LINE		$ 3200
109 IRON WIRE	8 Mi @ $ 150/Mi =	$ 1200
2 CHANNEL SUBSCRIBER LINE CARRIER =		$ 2460
ANNUAL CHARGES		
POLE LINE	19% X $ 3200 =	$ 608
WIRE	27% X $ 1200 =	$ 324
CABLE	1 PR X 2.50/KFT./YR X 2.64 KFT =	$ 7
CARRIER	30% X $ 2450 =	735
TOTAL		$ 1674

FIGURE FOUR.

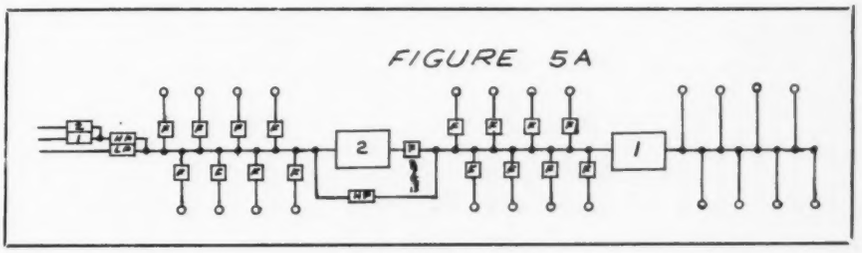


FIGURE FIVE-A.

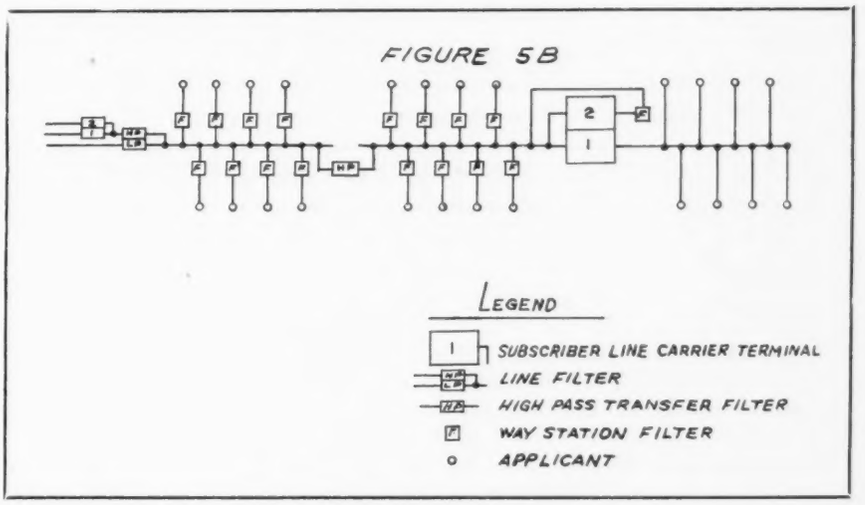


FIGURE FIVE-B.

"Subscriber Line Carrier"

(Continued From Page 51)

ber of special protector layouts, weatherproof carrier terminal housings, accessory panels, and maintenance points. The power consumption of the subscriber terminals is small, so that in the case of operation from commercial AC power, the power bill will usually be the minimum. Therefore, the concentration of these remote terminals will usually reduce the total power costs by reducing the number of minimum bills.

Figures 5*a* and 5*b* illustrate two different methods of serving the same 24 applicants with one physical circuit and two channels of subscriber line carriers. *Figure* 5*b* is the more economically attractive of the two layouts. It has one less remote terminal location, and therefore one less weather-proof housing, one less minimum power bill, and one less maintenance point. If voltage regulators and/or standby power supplies had been required in this instance, there would be one less of each of these.

Figure 6 is a simplified layout of a proposed extension of service utilizing subscriber line carrier circuits. Service requirements are for two one party business services to the commercial applicant at F, and eight party rural service to 43 applicants in the same general area. Due to the expediency of the request for the one party business services, it was necessary to utilize material on hand to provide these facilities — namely, two 104 copper wire circuits from the cable terminal at A to the commercial applicant at F. Service to the rural applicants is to be provided as soon as additional material can be secured.

A cost study proved that it would be most practical to provide the service to the rural applicants by means of six channels of subscriber line carriers. In interest of maximum service reliability, it was decided that the business services would remain on the physical circuits. Initial grouping of the subscribers indicated that one channel should be placed at B, one at C, one at E, one at F, two at G.

However, since it was realized that costs could be reduced by decreasing the number of remote terminal locations, other layouts were considered. A series of cost studies proved that the locating of three channels at D and three at G was the preferred arrangement.

Because the attenuation of the cable between A and the central office exceeded the usable gain of the carrier, it was necessary to locate the central office terminals of the carrier in a pole mounted cabinet at the end cable terminal. Of course, this is not the preferred arrangement, but it was necessary in this case.

Foreign Exchange Service

IT IS conceivable that the commercial applicant may desire foreign exchange service at some future date. The additional circuits required, if any, are to be provided by subscriber line carrier. Future growth is also anticipated in the vicinity of C and G. Again it is planned to provide future facilities by the addition of channels to the two initial subscriber line carrier systems. In the event of an unforeseen decrease in service re-

Please Turn to Page 97

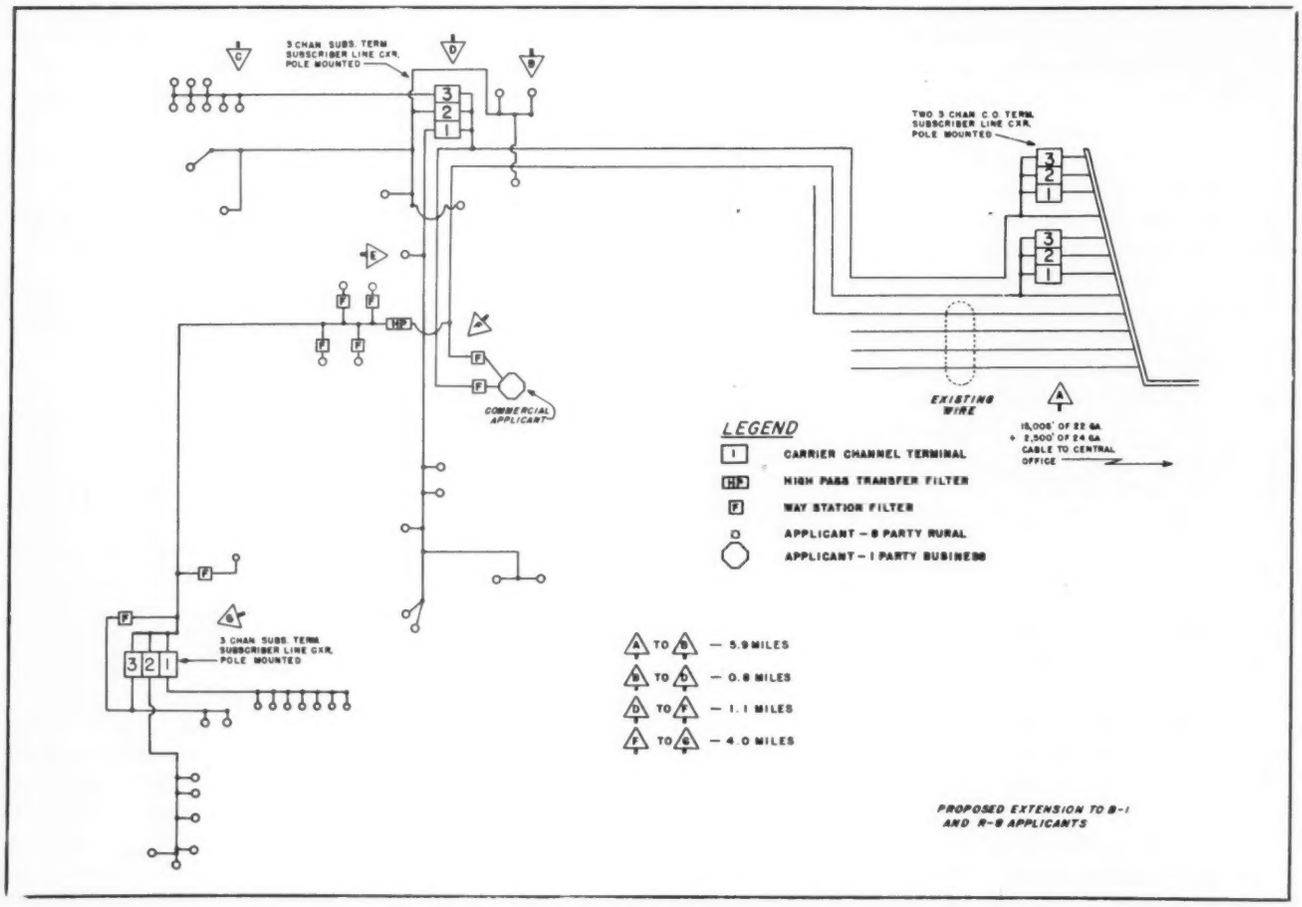
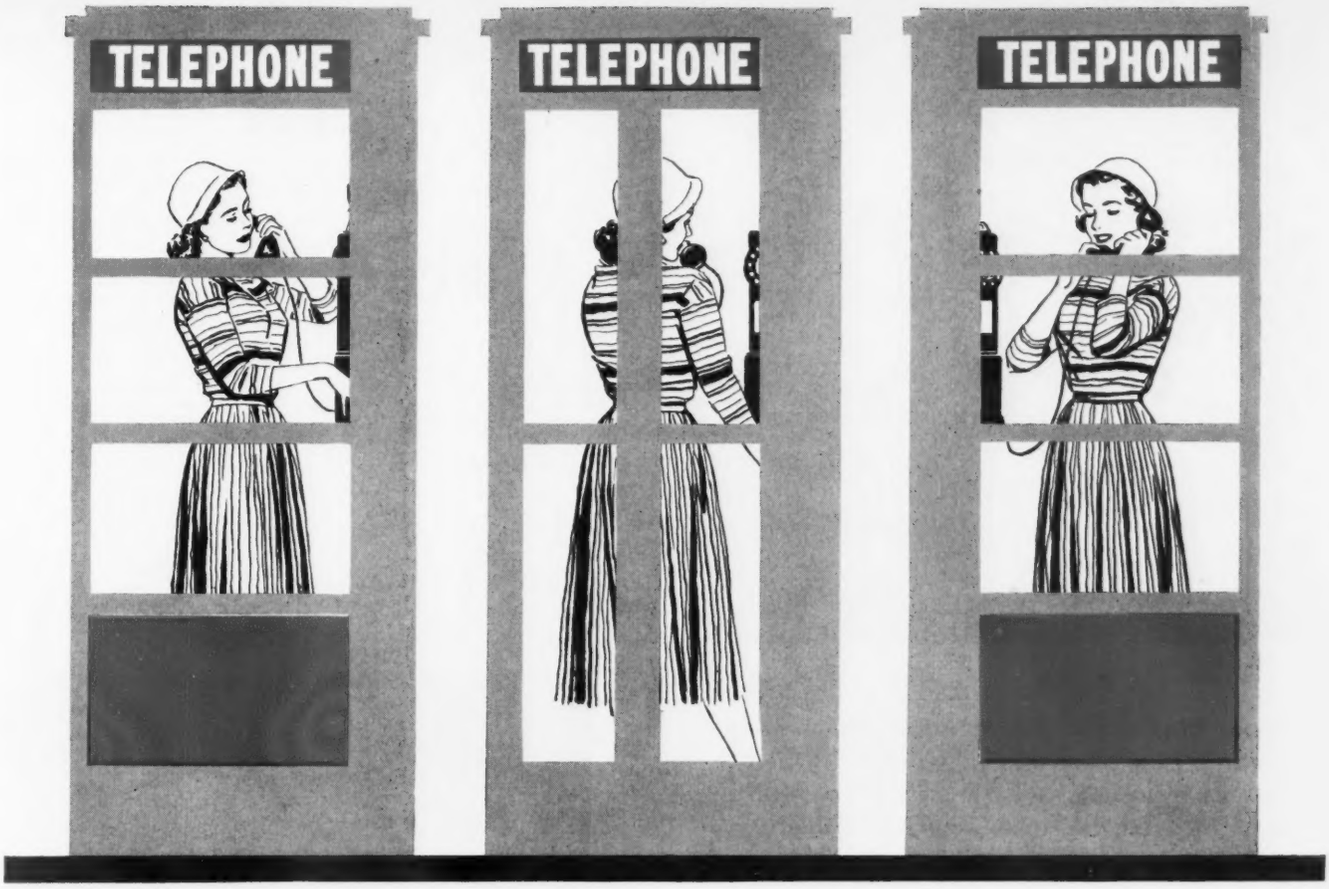

3 CHAN. SUBS. TERM. SUBSCRIBER LINE CXR. POLE MOUNTED
TWO 3 CHAN C.O. TERM. SUBSCRIBER LINE CXR. POLE MOUNTED
COMMERCIAL APPLICANT
EXISTING WIRE
15,000' OF 22 GA + 2,500' OF 24 GA CABLE TO CENTRAL OFFICE
LEGEND
CARRIER CHANNEL TERMINAL
HIGH PASS TRANSFER FILTER
WAY STATION FILTER
APPLICANT – 8 PARTY RURAL
APPLICANT – 1 PARTY BUSINESS
3 CHAN. SUBS. TERM. SUBSCRIBER LINE CXR. POLE MOUNTED
A TO B – 5.9 MILES
B TO C – 0.8 MILES
D TO F – 1.1 MILES
F TO G – 4.0 MILES
PROPOSED EXTENSION TO B-1 AND R-8 APPLICANTS

FIGURE SIX.



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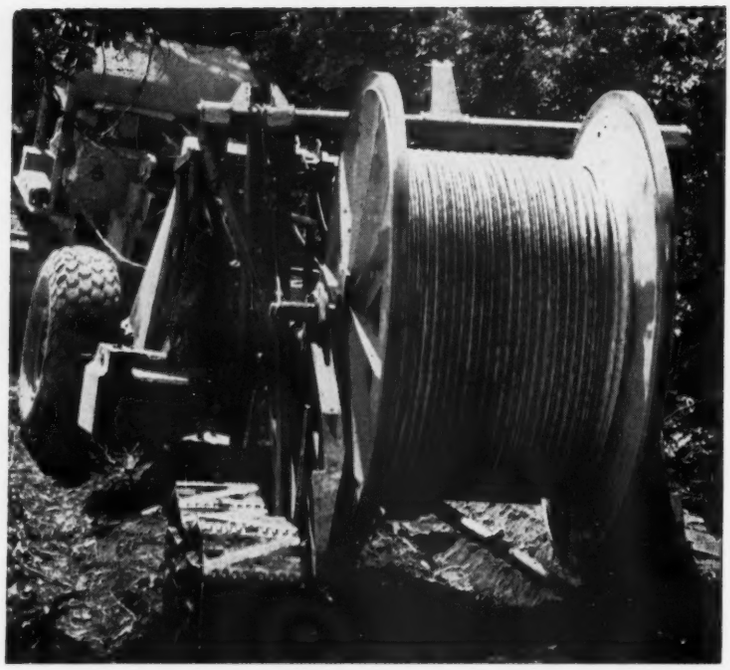
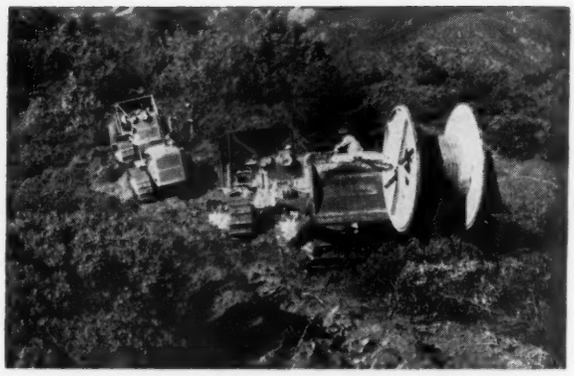


Modern Cable Construction



Section VI-E of Mr. Reed's article concludes his discussion of available types of strand mounted terminals and the methods of running drop wires into them and connecting the wires.

By JOHN S. REED

AT TERMINAL poles at the end of a lashed cable lead, the installation procedure is as follows:

(1) After marking the desired locations for attaching the strand mounted terminal, two layers of lead serving tape are wrapped around the two points selected, on the bail of the strand connector and on the messenger strand as illustrated in *Figure* 158. (Where a 3-bolt clamp is used

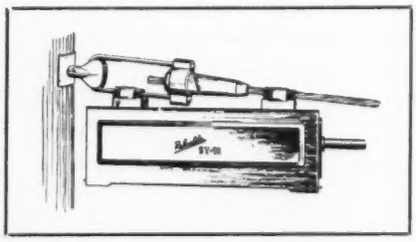


FIGURE 158: — Method of mounting Reliable ST-Type terminal at cable dead end.

at the strand dead end, the lead serving tape is applied to the lower part of the strand loop between the clamp and the thimble-eye bolt for the terminal mounting clamp nearer to the pole.)

(2) Straps are cut from 22 inch lashed cable supports, folded in half, flattened, and bent over the lead tape servings. The straps are inserted in the terminal mounting clamps, tightened, and the ends cut off flush.

In straight sections of leads involving ring supported cable, the installation method is as follows:

(1) After the location of the terminal is determined, two cable rings are placed temporarily to hold the cable at the proper distance from the messenger strand.

(2) Two aerial cable supports are used with the strap cut off about ½ inch from the "U" wire end. These supports are 22 inches long for smaller cables and 28 inches long for larger cables. The formed end of each cable support is placed on top of the cable in a position opposite the terminal mounting clamps with the strap loop up. The "U" wire is then wrapped around the messenger strand as illustrated in *Figure* 159.

(3) The hanger straps are folded in half to obtain double thickness and flattened. The straps are threaded through hanger loops and bent down on the cable with the strap ends hanging down.

(4) The straps are tightened, the mounting clamp screws turned down

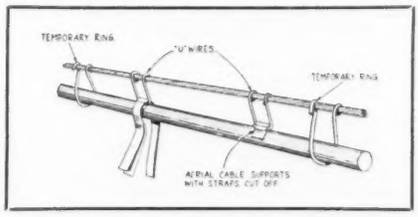


FIGURE 159: — Preliminary steps in mounting Reliable ST-Type terminal on ring supported cable.

and the strap ends trimmed off flush as previously described. The completed installation then presents the appearance illustrated in *Figure* 160.

When the cable messenger is suspended on steel extension arms, the terminal should be located to face the pole and at a sufficient distance from the extension arm so as not to interfere with work on the arm. At the same time, the terminal should

be close enough to the pole to enable telephone workmen to gain access to the terminal for any necessary work. In some cases it may be more convenient to mount the terminal on the pole with a stub of sufficient length to reach the main cable on the extension arm as shown in *Figure* 161.

Although ST-Type terminals are designed primarily to mount on messenger strand, they can also be mounted on poles or building walls, using a bracket provided for the purpose as illustrated in *Figure* 162.

The mounting bracket is mounted on the pole in the vertical position, using 3/8" lag screws or the equivalent. The mounting clamp bolt on the terminal is backed off until it binds, and then the terminal is placed on the bracket so the two bracket ears fit in the mounting clamps of the terminal. The mounting clamp bolts are then tightened to secure the terminal in position. If a horizontal mounting position is desired, the terminal should be mounted so that the cover swings downward when opened.

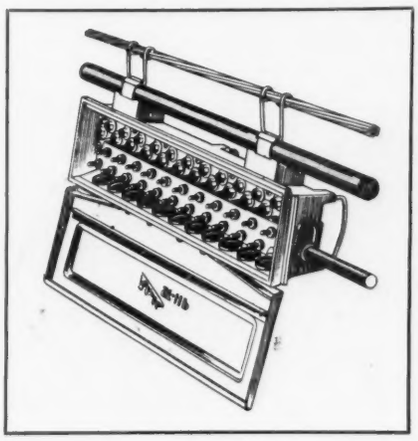


FIGURE 160: — Reliable ST-Type terminal mounted on ring supported cable.

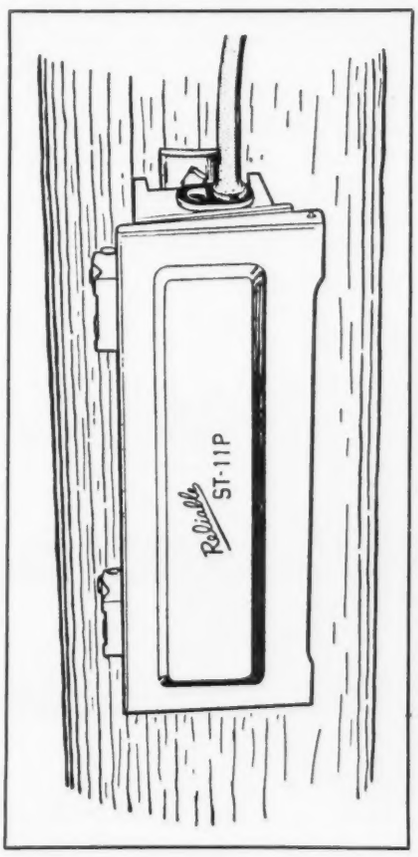


FIGURE 161: — Reliable ST-Type terminal mounted in vertical position on pole.

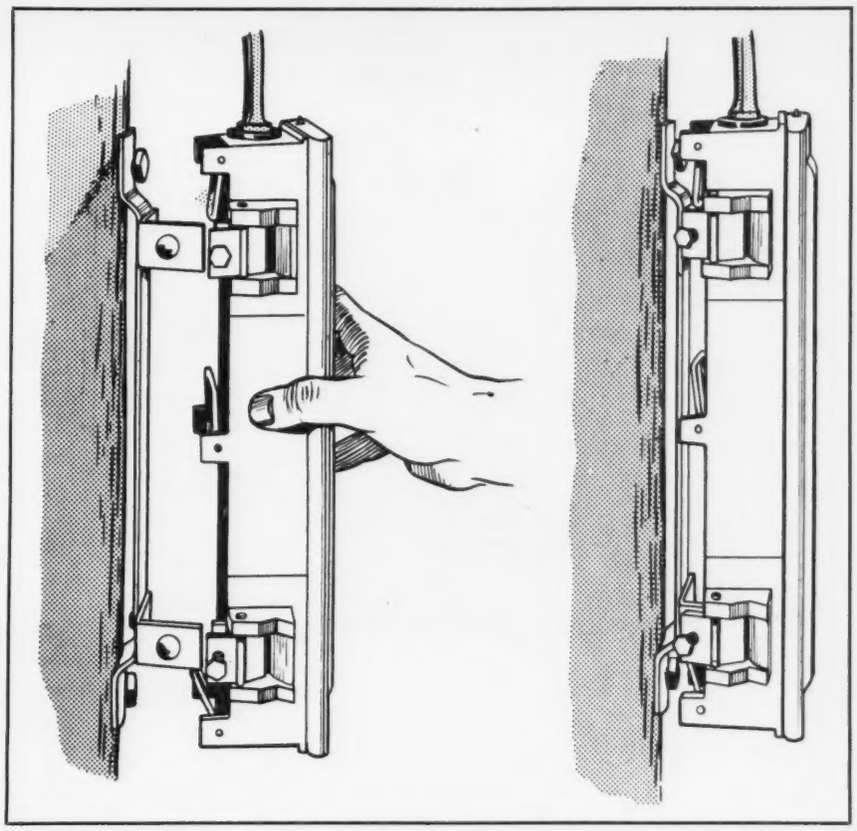


FIGURE 162: — Steps in mounting Reliable ST-terminal on pole or building wall.

Reliable Neoprene Splicing Sleeve

THE STUB from a strand mounted terminal can be brought into a new type of splicing sleeve developed by the Reliable Electric Company.

This splicing sleeve, illustrated in *Figure* 163, is designed to provide a method of sealing sheath openings in plastic-jacketed cable which can be installed by a person with semi-skill, tested for tightness after instal-

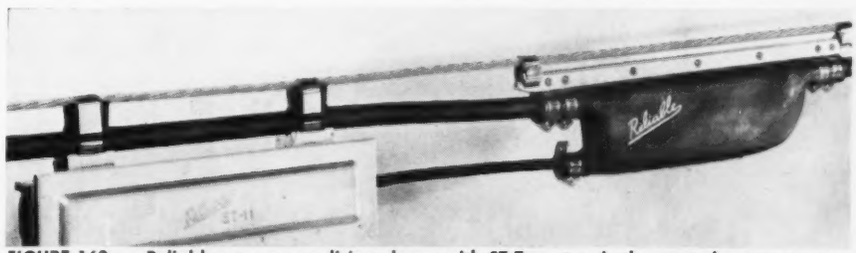


FIGURE 163: — Reliable neoprene splicing sleeve with ST-Type terminal mounted on messenger.

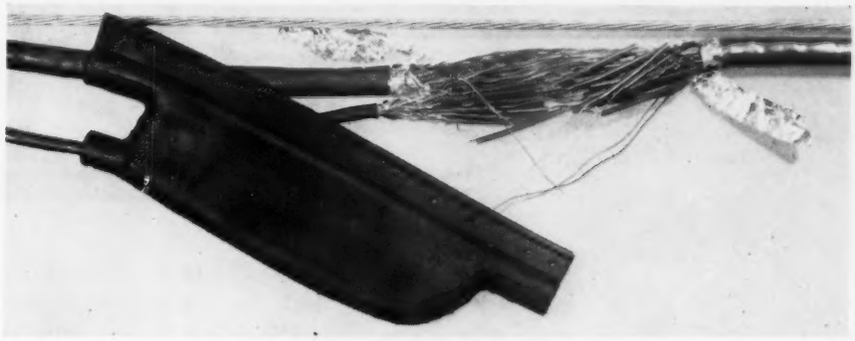


FIGURE 164: — Showing method of splicing terminal stub to main cable when Reliable neoprene splicing sleeve is employed.

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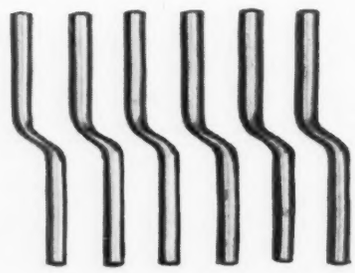

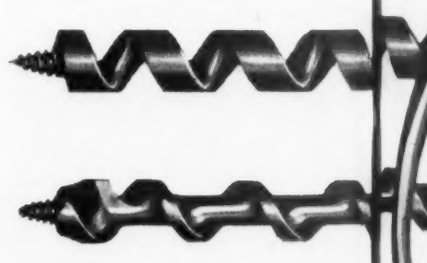

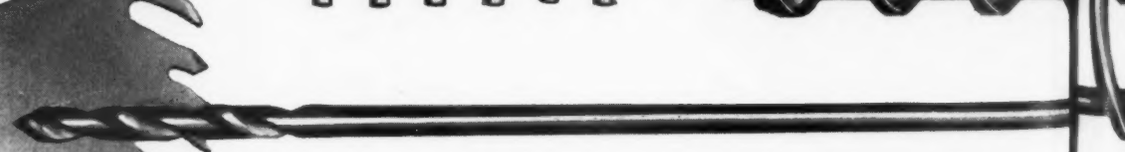

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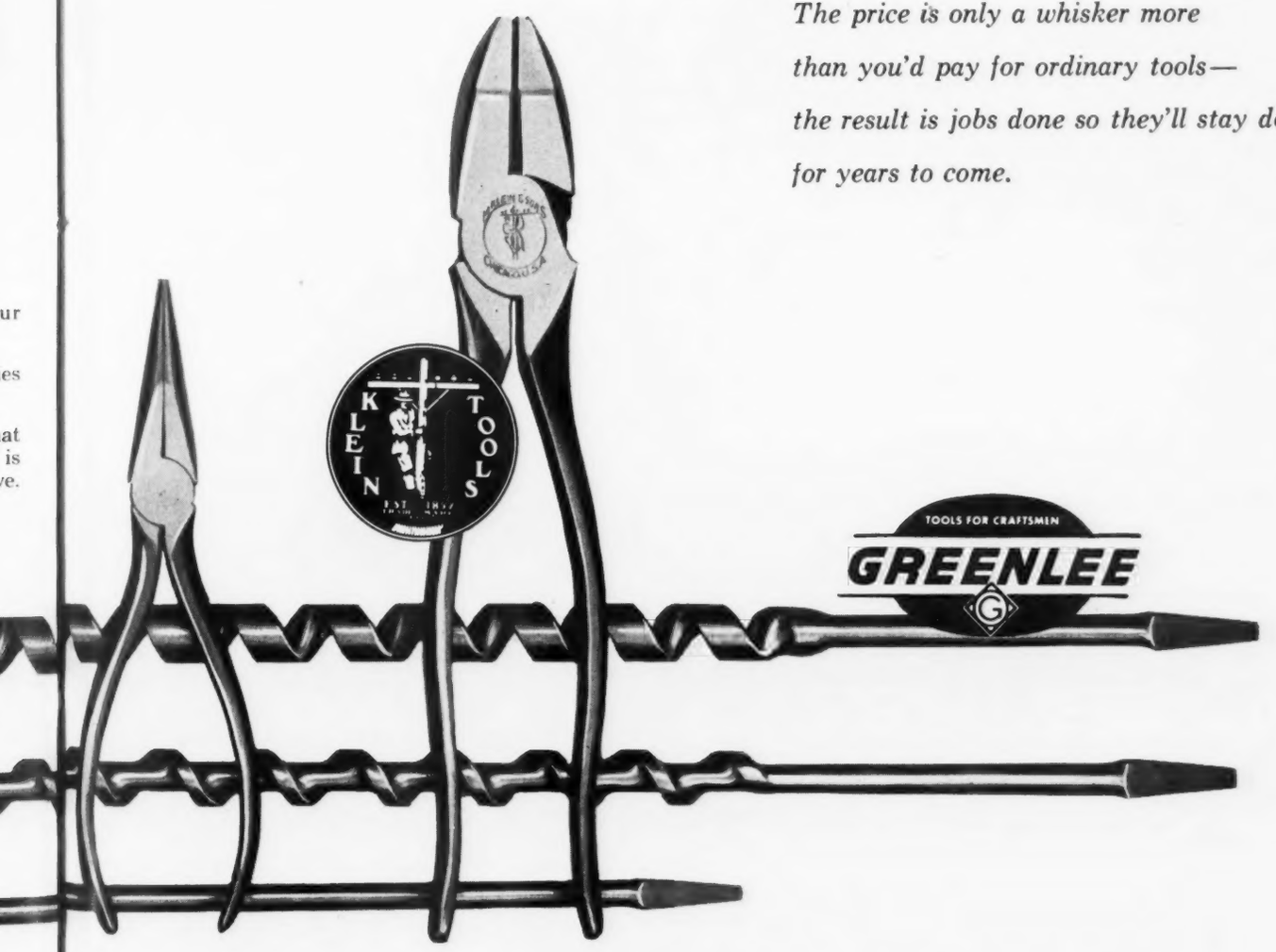

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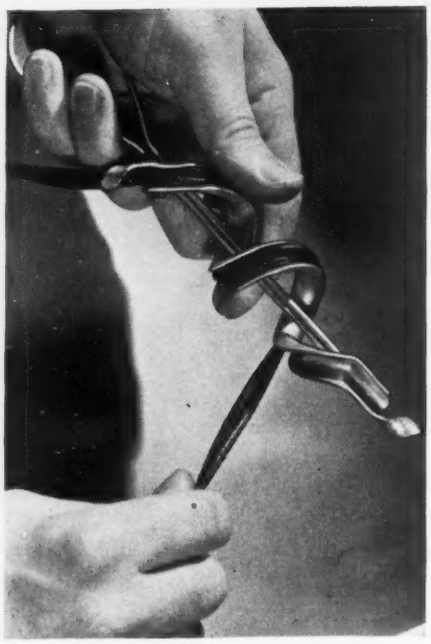

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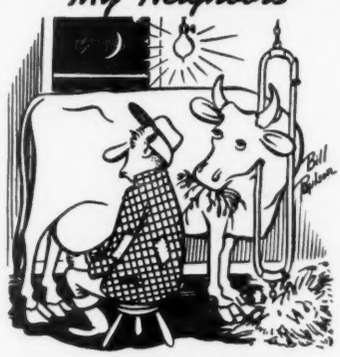
lations and be opened later for rearrangements, if necessary.

The splice sleeve is made from a very high-grade neoprene which is strong (1500 psi tensile strength), weather-resistant and has excellent low temperature qualities (−40°F). It has sufficient resilience to follow any expansion and contraction of the cable sheath and still provide a seal.

The hose clamps, nuts and screws are stainless steel; the clamping bars are of aluminum and the valve is plated brass. All parts are designed for long life.

The splicing sleeve is intended to be used primarily with plastic sheathed cable as an enclosure for the stub splice to the main cable when installing a terminal. The opening at the lower section, away from the clamping bar, is for the stub entrance before splicing. The sleeve is made so that the main cable need not be cut in two. Only the conductors necessary for installing the terminal need be cut. The slots on the end of the clamping bars are used to suspend the sleeve from the messenger.

While the splicing sleeve is primar-



"The man who said that taxes keep us half-way broke was sure a poor judge of distance!"

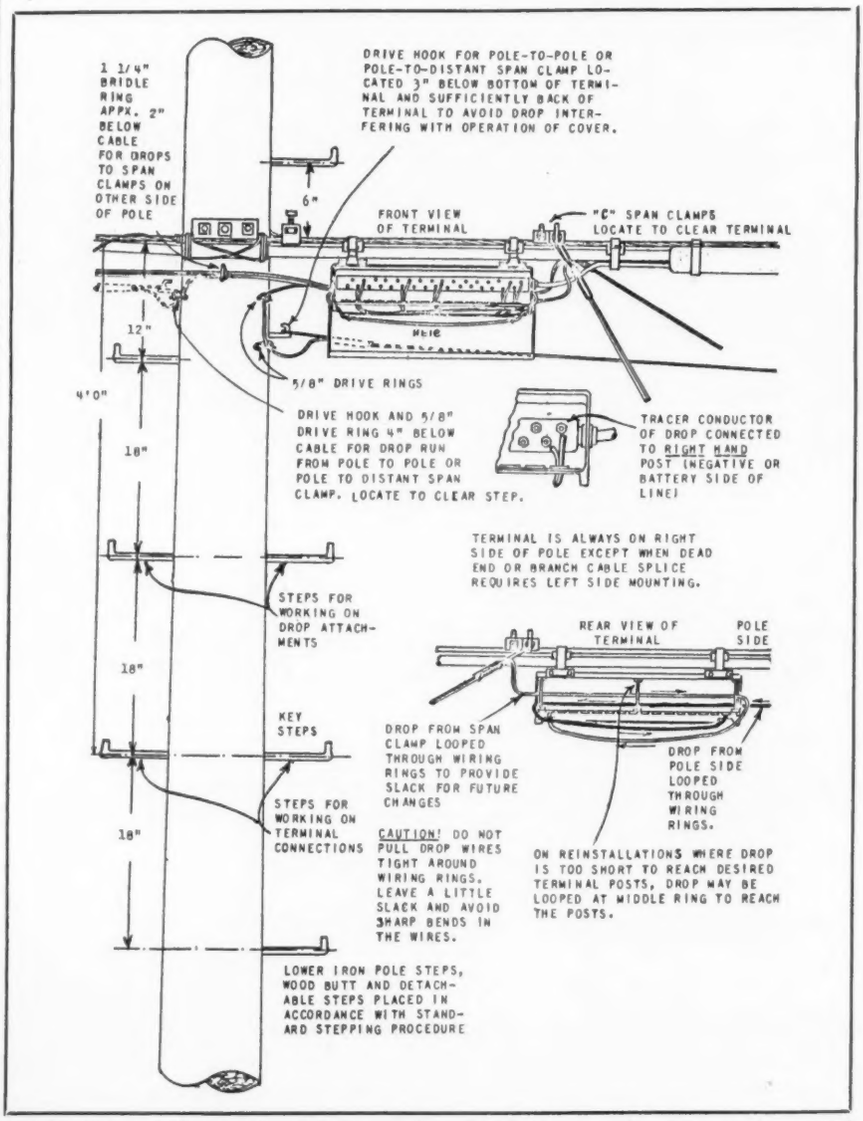

1 1/4" BRIDLE RING APPX. 2" BELOW CABLE FOR DROPS TO SPAN CLAMPS ON OTHER SIDE OF POLE
DRIVE HOOK FOR POLE-TO-POLE OR POLE-TO-DISTANT SPAN CLAMP LOCATED 3" BELOW BOTTOM OF TERMINAL AND SUFFICIENTLY BACK OF TERMINAL TO AVOID DROP INTERFERING WITH OPERATION OF COVER.
6"
FRONT VIEW OF TERMINAL
"C" SPAN CLAMPS LOCATE TO CLEAR TERMINAL
12"
5/8" DRIVE RINGS
4'0"
DRIVE HOOK AND 5/8" DRIVE RING 4" BELOW CABLE FOR DROP RUN FROM POLE TO POLE OR POLE TO DISTANT SPAN CLAMP. LOCATE TO CLEAR STEP.
TRACER CONDUCTOR OF DROP CONNECTED TO RIGHT HAND POST (NEGATIVE OR BATTERY SIDE OF LINE)
18"
TERMINAL IS ALWAYS ON RIGHT SIDE OF POLE EXCEPT WHEN DEAD END OR BRANCH CABLE SPLICE REQUIRES LEFT SIDE MOUNTING.
STEPS FOR WORKING ON DROP ATTACHMENTS
REAR VIEW OF TERMINAL
POLE SIDE
18"
KEY STEPS
DROP FROM SPAN CLAMP LOOPED THROUGH WIRING RINGS TO PROVIDE SLACK FOR FUTURE CHANGES
DROP FROM POLE SIDE LOOPED THROUGH WIRING RINGS.
STEPS FOR WORKING ON TERMINAL CONNECTIONS
18"
CAUTION! DO NOT PULL DROP WIRES TIGHT AROUND WIRING RINGS. LEAVE A LITTLE SLACK AND AVOID SHARP BENDS IN THE WIRES.
ON REINSTALLATIONS WHERE DROP IS TOO SHORT TO REACH DESIRED TERMINAL POSTS, DROP MAY BE LOOPED AT MIDDLE RING TO REACH THE POSTS.
LOWER IRON POLE STEPS, WOOD BUTT AND DETACHABLE STEPS PLACED IN ACCORDANCE WITH STANDARD STEPPING PROCEDURE

FIGURE 165: — Pole stepping details and drop distribution at pole with strand mounted terminal in straight sections of cable lead.

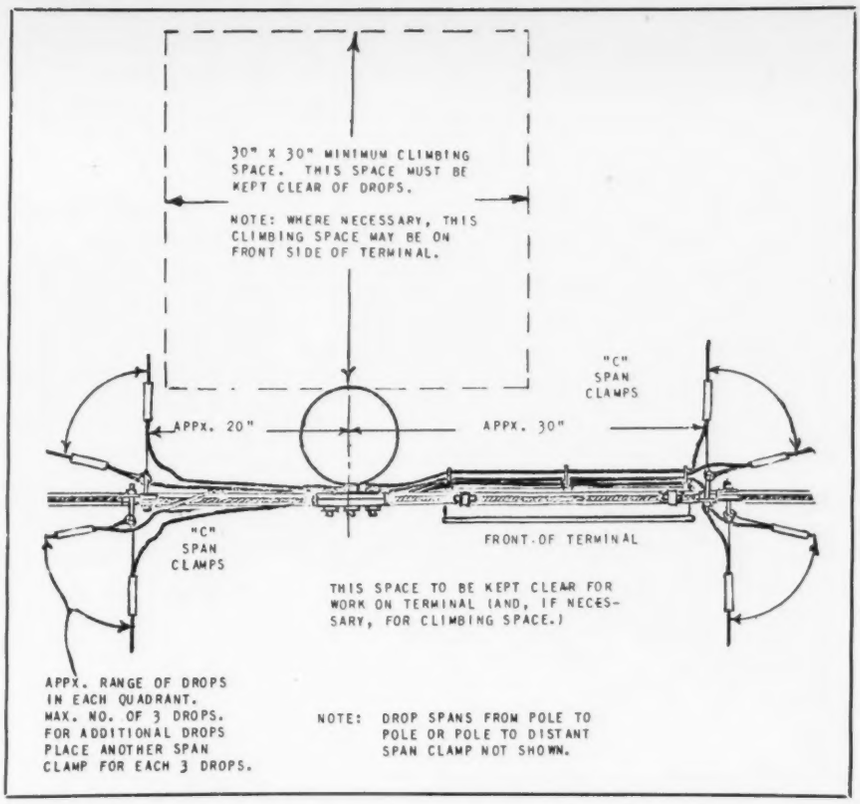

30" X 30" MINIMUM CLIMBING SPACE. THIS SPACE MUST BE KEPT CLEAR OF DROPS.
NOTE: WHERE NECESSARY, THIS CLIMBING SPACE MAY BE ON FRONT SIDE OF TERMINAL.
"C" SPAN CLAMPS
APPX. 20"
APPX. 30"
"C" SPAN CLAMPS
FRONT OF TERMINAL
THIS SPACE TO BE KEPT CLEAR FOR WORK ON TERMINAL (AND, IF NECESSARY, FOR CLIMBING SPACE.)
APPX. RANGE OF DROPS IN EACH QUADRANT. MAX. NO. OF 3 DROPS. FOR ADDITIONAL DROPS PLACE ANOTHER SPAN CLAMP FOR EACH 3 DROPS.
NOTE: DROP SPANS FROM POLE TO POLE OR POLE TO DISTANT SPAN CLAMP NOT SHOWN.

FIGURE 166: — Drop Distribution at strand mounted terminal in straight section of cable lead showing climbing space and limits on number of drops from span clamps. Note: In the case of span clamps located at a distance from the pole, the recommended limit is two drops, preferably one per span clamp.

ily for use with cable terminals, the sleeve can be used for splicing branch legs of cable to the main cable, making straight splices in the main cable (with the lower entrance hole plugged), providing temporary cover for splices in lead cables (the splice sleeve works well on lead-covered cables).

The table (below) shows three sizes of neoprene splicing sleeves presently available for use with various plastic jacketed main cables.

The procedure for installing the Reliable Neoprene Splice Sleeve is:

(1) The guard cap and nuts are removed from the clamping bar. (The screws will not come out as they are

Main Cable Size	Number	Plastic Main Cable Size*
3/4" to 15/16" O.D.	5400	51 pair 24 gauge 51 pair 22 gauge 26 pair 19 gauge Or lead cables having an outside diameter betwen 3/4" and 15/16"
5/8" to 3/4" O.D.	5401	26 pair 24 gauge 26 pair 22 gauge 16 pair 19 gauge Or lead cables having an outside diameter between 5/8" and 3/4"
7/16" to 5/8"	5402	16 pair 24 gauge 11 pair 24 gauge 16 pair 22 gauge 11 pair 22 gauge 11 pair 19 gauge 6 pair 19 gauge Or lead cables having an outside diameter between 7/16" and 5/8".

*Cables with plastic insulated conductors and plastic jacket.
The plastic terminal stub cable or the branch cable may be any one of the following sizes:

26 pair 24 gauge
16 pair 24 gauge
11 pair 24 gauge
16 pair 22 gauge
11 pair 22 gauge
11 pair 19 gauge
6 pair 19 gauge
Or lead cable having an outside diameter between 7/16" and 5/8".

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Here's the standard, the choice of the utility industry for years. Powerful action to cut cleanly—tough and almost unbreakable—easy to handle. No. 12 Pruner Head has 1½" cutting capacity. The lighter, No. 11, handles up to 1" branches. Both are malleable iron castings with tempered steel cutting blade.

Poles (18 ft. 3 sections) are of selected spruce with positive locking, seamless aluminum, telescoping ferrule joints.

FAST CUTTING PRUNING SAWS

Designed for fast, easy cutting—large, deep teeth, finest Swedish charcoal steel, streamlined, laminated hardwood handles. Every model you need up to chain saw work.

No. 20 POLE SAW HEAD

Tough aluminum head with large hook and outside horn for pushing branches, raising wires, etc. Also paint brush holder with wire clamp that holds brush securely. Fast-cuting 16" blade. Poles available.

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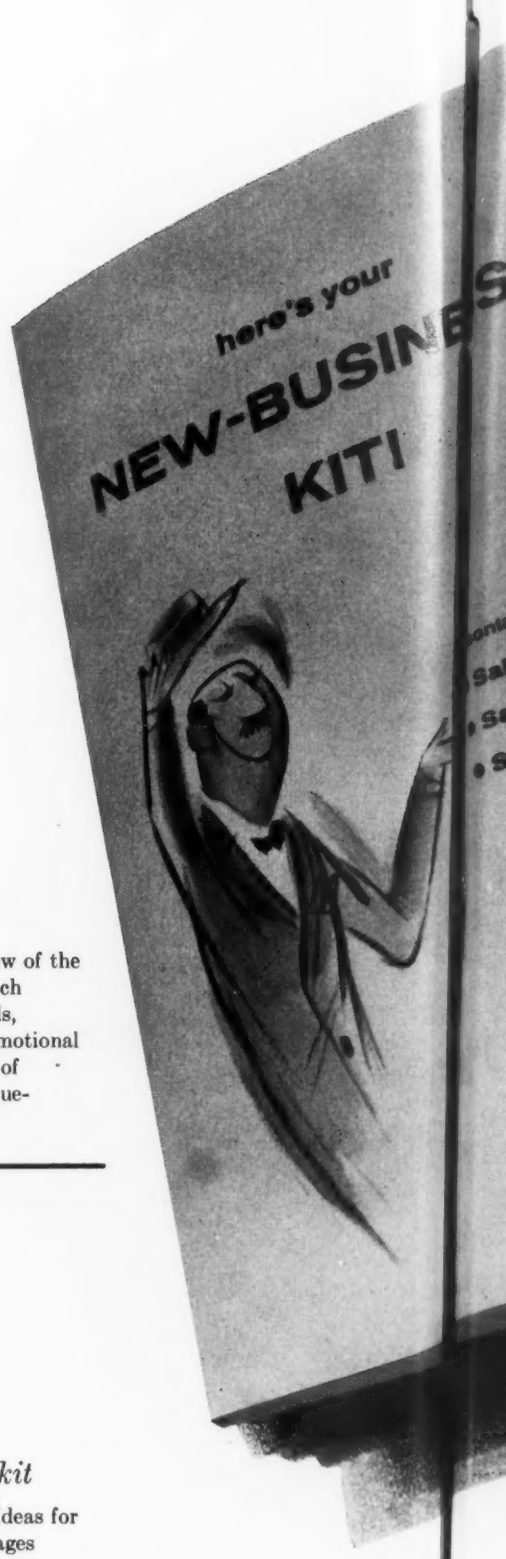
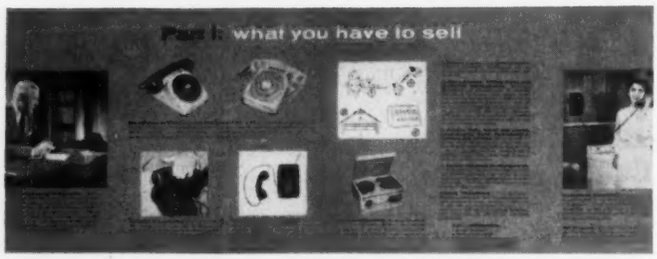


Everything you need!

Here's a bird's-eye view of the New-Business Kit which contains newspaper ads, publicity releases, promotional folders—and a wealth of proved practical revenue-boosting tips.

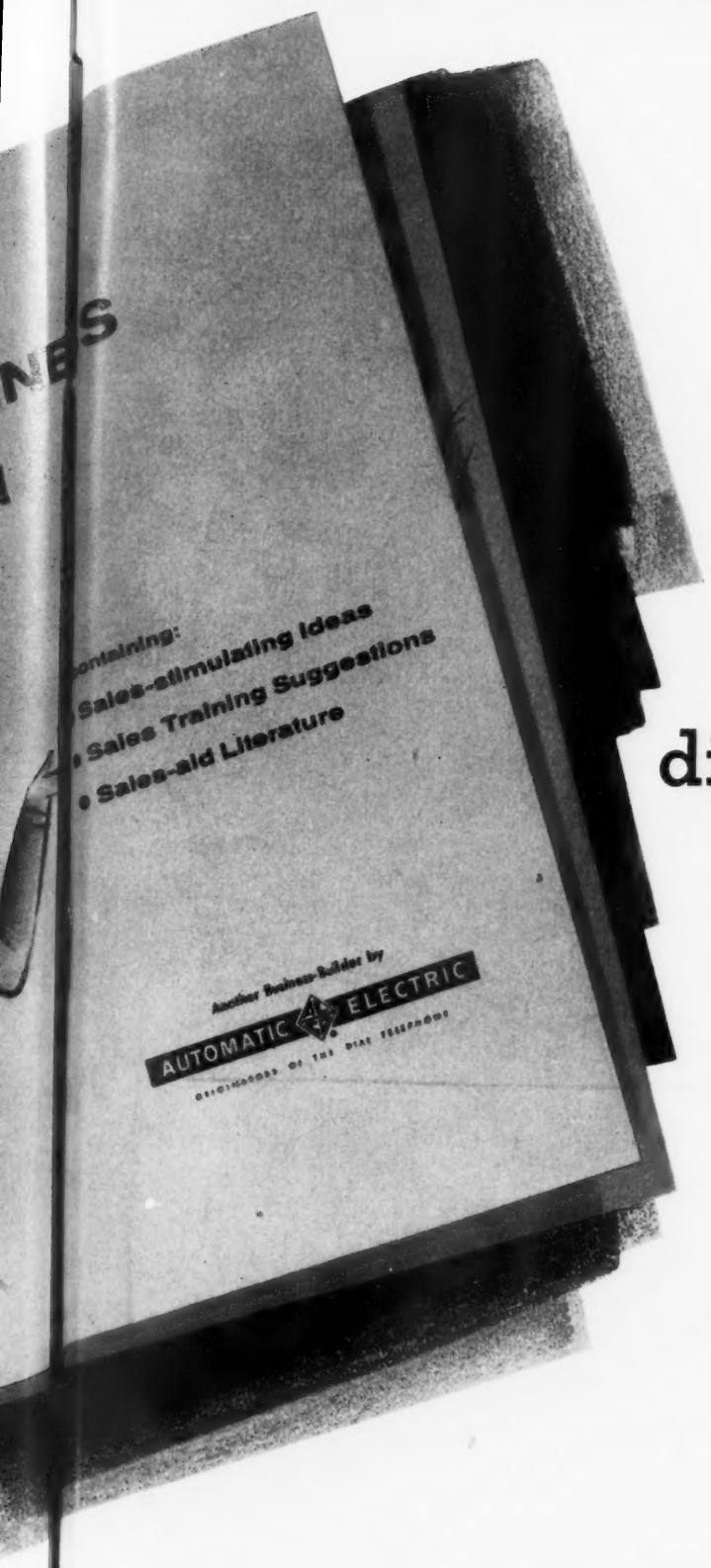


(a)

(b)

King-pin of the kit

is this helpful guide "Ideas for Building Business." Pages shown *at left* are: (a) products being promoted successfully today, and (b) a complete plan for promoting them.



did you get your copy?

Automatic's New-Business Kit, we mean! It's a definite must, if you want to sell the extra services that mean extra revenue.

It's chock-full of modern, proved sales helps.

What's more, it shows you how, when, and where to use them! It gives you a practical plan that includes sales training, publicity, newspaper advertising, direct mail, displays, and signs. It also includes helpful tips on promoting extensions, telephones in color, and other popular products and services.

Did you get your kit? If you didn't, drop us a note. We'll be happy indeed to send it out by return mail. Ask for Circular 1858.

Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7.*
Or call HAymarket 1-4300.

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

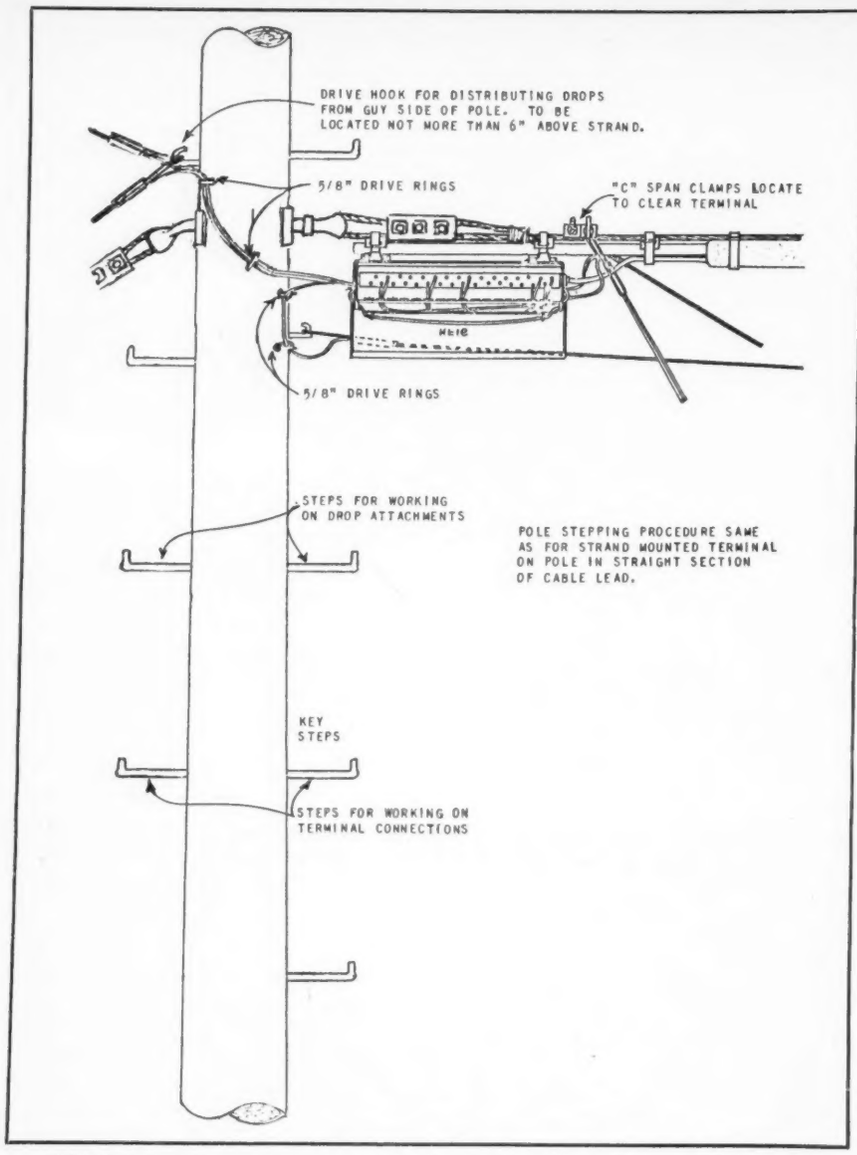

DRIVE HOOK FOR DISTRIBUTING DROPS FROM GUY SIDE OF POLE. TO BE LOCATED NOT MORE THAN 6" ABOVE STRAND.
5/8" DRIVE RINGS
"C" SPAN CLAMPS LOCATE TO CLEAR TERMINAL
5/8" DRIVE RINGS
STEPS FOR WORKING ON DROP ATTACHMENTS
POLE STEPPING PROCEDURE SAME AS FOR STRAND MOUNTED TERMINAL ON POLE IN STRAIGHT SECTION OF CABLE LEAD.
KEY STEPS
STEPS FOR WORKING ON TERMINAL CONNECTIONS

FIGURE 167: — Drop arrangement at dead-end pole with strand mounted terminal.

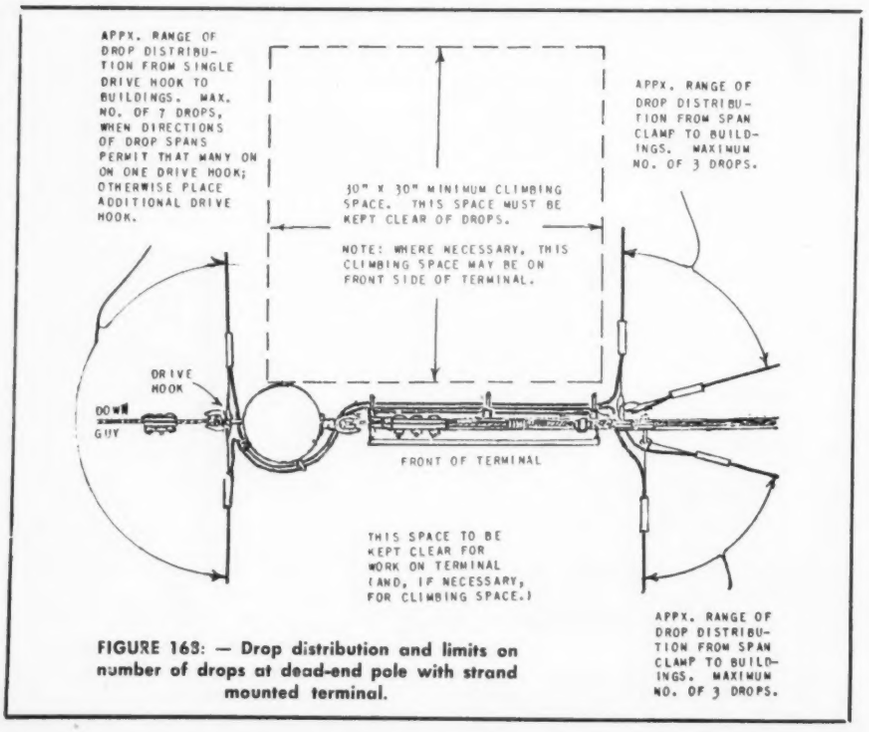

APPX. RANGE OF DROP DISTRIBUTION FROM SINGLE DRIVE HOOK TO BUILDINGS. MAX. NO. OF 7 DROPS, WHEN DIRECTIONS OF DROP SPANS PERMIT THAT MANY ON ON ONE DRIVE HOOK; OTHERWISE PLACE ADDITIONAL DRIVE HOOK.
APPX. RANGE OF DROP DISTRIBUTION FROM SPAN CLAMP TO BUILDINGS. MAXIMUM NO. OF 3 DROPS.
30" X 30" MINIMUM CLIMBING SPACE. THIS SPACE MUST BE KEPT CLEAR OF DROPS.
NOTE: WHERE NECESSARY, THIS CLIMBING SPACE MAY BE ON FRONT SIDE OF TERMINAL.
DRIVE HOOK
DOWN GUY
FRONT OF TERMINAL
THIS SPACE TO BE KEPT CLEAR FOR WORK ON TERMINAL (AND, IF NECESSARY, FOR CLIMBING SPACE.)
APPX. RANGE OF DROP DISTRIBUTION FROM SPAN CLAMP TO BUILDINGS. MAXIMUM NO. OF 3 DROPS.

FIGURE 168: — Drop distribution and limits on number of drops at dead-end pole with strand mounted terminal.

permanently attached to one clamping bar.) The clamping bars and four hose clamps are then removed at the top and the sleeve opened.

(2) The hose clamp on the lower outlet is loosened and, with the terminal or branch cable in place, the stub or branch cable is inserted into this hole. The sheath is removed from the stub or branch cable so that the sheath ends at a point just inside the splice sleeve when in final position.

(3) A 12-inch opening is cut in the main cable sheath and the necessary splices are made in the conductors. The splices in the conductors should be kept below the main cable so they will fit into the splice sleeve properly, as shown in *Figure* 164.

(4) After the conductor splicing has been completed and the aluminum shield tape is wrapped in place, the splice sleeve is brought up around the splice. Dessicant may be placed in the splice sleeve at this time.

(5) The hose clamp on the stub or branch cable is next tightened snugly. With the splice sleeve and hose clamps in place, the clamping bar with the screws is inserted through the holes in the hose clamps and splice sleeve. The clamping bar with the holes is placed in position and the nuts tightened on the studs. The four hose clamps at the top of the sleeve are tightened and the guard cap placed on the splice sleeve to finish the splice.

(6) To support the splice sleeve, aerial cable supports are inserted through the slots in the ends of the clamping bars and wrapped around the messenger.

(7) Air at a pressure of 1 to 3 pounds per square inch is introduced into the sleeve through the valve, and a soap solution is applied over the sleeve and its connection to check for leakage. Tightening the hose clamps and clamping bar nuts will eliminate any leakage detected in this test.

Typical Pole Stepping Arrangement

EXPERIENCE with installations of strand mounted terminals indicates that the pole stepping arrangement shown in *Figure* 165 is desirable for providing two convenient working positions, one for making terminal connections and another for attaching drops to the messenger for the spans to the building.

Figures 165 *and* 166 show methods

of distributing drops from span clamps attached to the messenger near the pole. This arrangement assures adequate climbing space for power linemen going up into the power space on joint-use poles, and also provides room for men to work on the terminal and drop attachments.

For terminal poles at cable ends, the drop distribution is made as illustrated in *Figures* 167 *and* 168. The drops from the side of the pole opposite the strand mounted terminal side are located to clear the down guy.

When it is desired to distribute the drops directly from the pole, rather than use span clamps on the messenger for this purpose, a commonly used arrangement is the one shown in *Figure* 169. If it is company practice to install guard arms above the messenger on joint-use poles, the drops are distributed as shown in *Figure* 170.

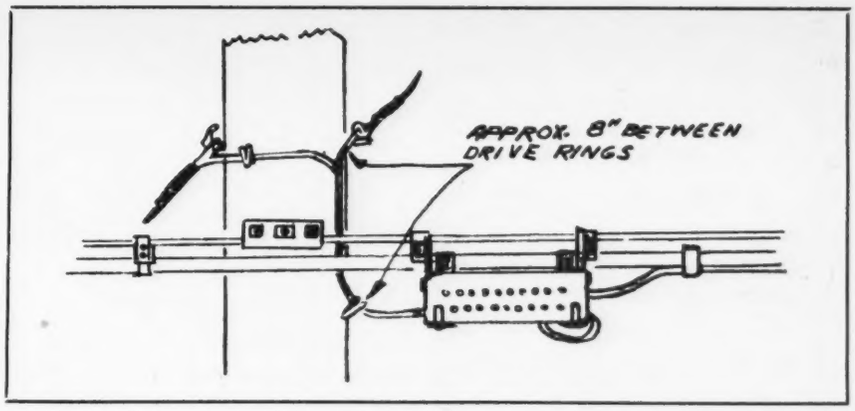


FIGURE: 169: — Drop distribution directly from pole with strand mounted terminal.

Binding Post Identification in Strand Mounted Terminals

AS IN THE CASE of regular pole mounted terminals, each right hand post is always connected to the negative or "ring" side of the line, which is the red conductor of the cable pair, while the left hand post is the positive or "tip" side of the line and is connected to the white mate conductor. This arrangement is illustrated in *Figure* 171. The terminal pair count is always from left to right along the row of binding posts as indicated in this illustration.

The stub pairs are spliced to the main cable pairs in such a manner as to provide the correct polarity of the terminal binding posts. The polarity indicated for the red and white conductor connections is obtained with the strand mounted terminal mounted to the right of the adjacent pole. When the terminal is installed to the left side of the pole, requiring reversing of the binding post block and the stub, the red and white conductors in the stub are reversed in splicing to the main cable conductors. Before splicing, the connection of the negative or "ring" conductor to the terminal posts should be tested to assure the proper polarity. If the eleventh or sixteenth pair of the stub is made a spare pair rather than a working pair, it should always be connected to the last pair of posts in the terminal pair count.

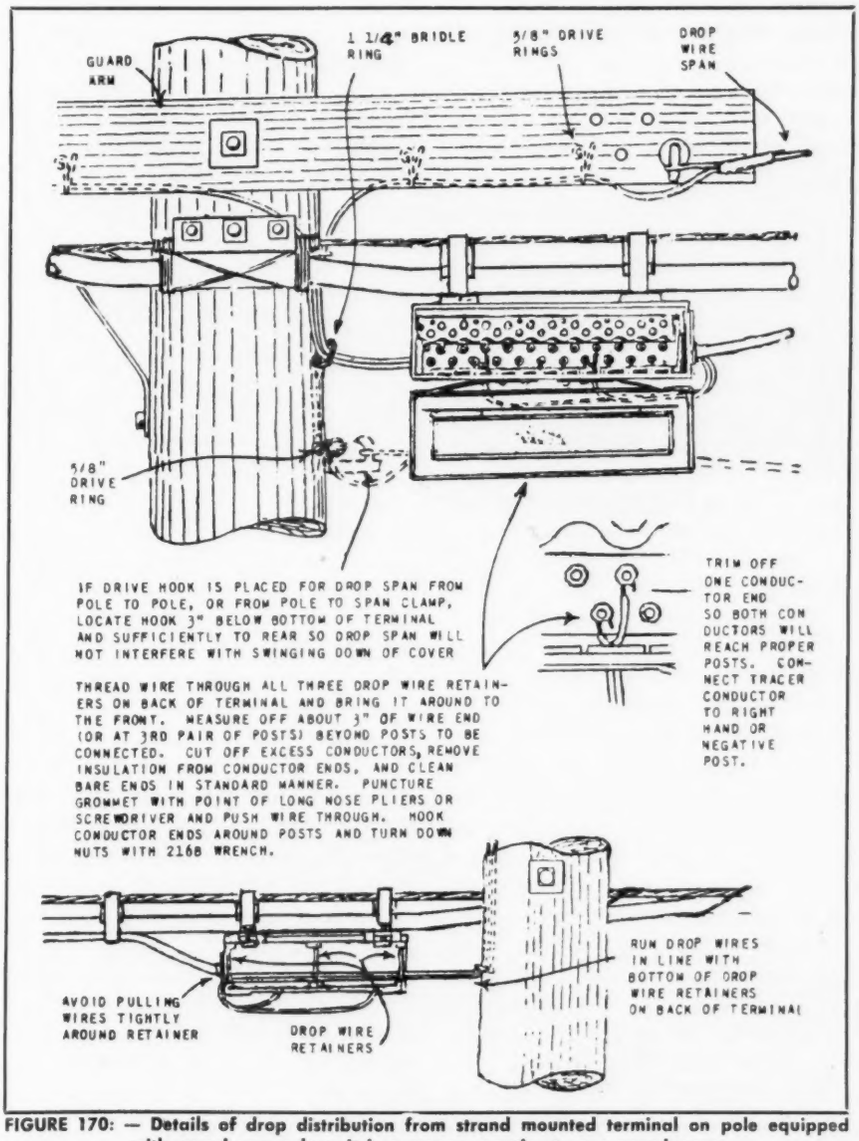
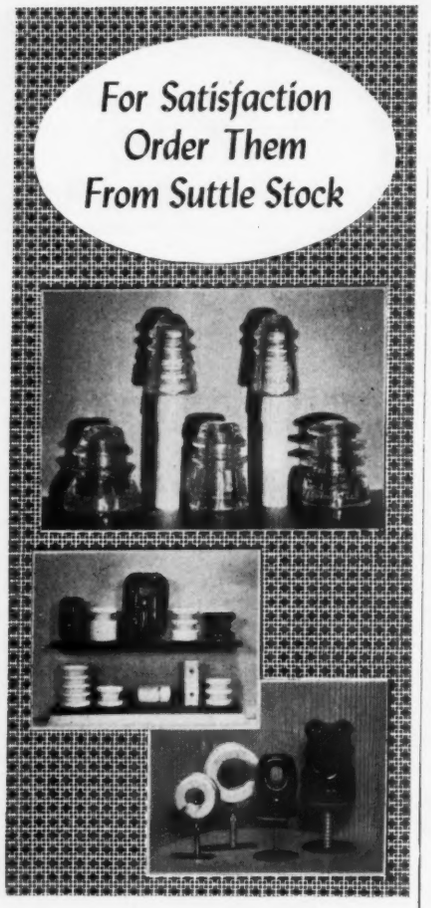

GUARD ARM
1 1/4" BRIDLE RING
5/8" DRIVE RINGS
DROP WIRE SPAN
5/8" DRIVE RING
IF DRIVE HOOK IS PLACED FOR DROP SPAN FROM POLE TO POLE, OR FROM POLE TO SPAN CLAMP, LOCATE HOOK 3" BELOW BOTTOM OF TERMINAL AND SUFFICIENTLY TO REAR SO DROP SPAN WILL NOT INTERFERE WITH SWINGING DOWN OF COVER
THREAD WIRE THROUGH ALL THREE DROP WIRE RETAINERS ON BACK OF TERMINAL AND BRING IT AROUND TO THE FRONT. MEASURE OFF ABOUT 3" OF WIRE END (OR AT 3RD PAIR OF POSTS) BEYOND POSTS TO BE CONNECTED. CUT OFF EXCESS CONDUCTORS, REMOVE INSULATION FROM CONDUCTOR ENDS, AND CLEAN BARE ENDS IN STANDARD MANNER. PUNCTURE GROMMET WITH POINT OF LONG NOSE PLIERS OR SCREWDRIVER AND PUSH WIRE THROUGH. HOOK CONDUCTOR ENDS AROUND POSTS AND TURN DOWN NUTS WITH 216B WRENCH.
TRIM OFF ONE CONDUCTOR END SO BOTH CONDUCTORS WILL REACH PROPER POSTS. CONNECT TRACER CONDUCTOR TO RIGHT HAND OR NEGATIVE POST.
AVOID PULLING WIRES TIGHTLY AROUND RETAINER
DROP WIRE RETAINERS
RUN DROP WIRES IN LINE WITH BOTTOM OF DROP WIRE RETAINERS ON BACK OF TERMINAL

FIGURE 170: — Details of drop distribution from strand mounted terminal on pole equipped with guard arm, where it is company practice to use guard arms.

Questions on Part VI

QUESTIONS ON PART VI: — Cable Terminals for Pole or Wall Mounting; Cable Terminals — Face Plate Type; Cable Terminals — Fuse and Protector Block Type; Cable Terminals with Binding Post Blocks for pole or Building Mounting: Cross Connecting Terminals: Cable Terminal Connections; Typical Cable Terminal Mountings for Connecting Drop Wires; Cable Terminals at Junctions of Cable with Open Wire; Stepping of Pole-Mounted Cable Terminal Poles; Strand Mounted Terminals; Cook

Please turn to page 64



Hemingray Glass

Fifty years ago Hemingray glass insulators stood for quality — today they still do — the five popular telephone styles are always in stock.

Porcelain Products Knobs

Careful mixing of the clays provide a uniform quality material highly resistant to breakage — along with accurately controlled "firing" PP knobs and insulators are of the finest quality you can buy.

Pearl Screw Brackets

Made at the Pearl factory — where the "Pearl" patent on the lead sealing originated — these are the genuine product with all the pride of the inventor behind the quality of the product.

See Your SUTTLE Catalog

Serving Independent Telephone Men Since 1910

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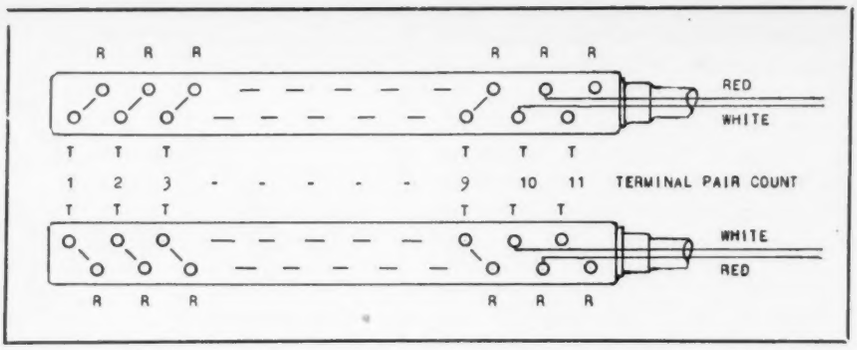


Figure 171: — Showing polarity of binding posts in strand mounted terminal for normal position of terminals with different arrangements of posts.

Electric "Stranterm" for Strand Mounting; Locating and Installing Cook Stranterms; Cook Splice-Maker with Stranterm; Reliable ST-Type Strand Mounted Cable Terminals; Installing Reliable ST-Type Terminals; Reliable Neoprene Splicing Sleeve; Typical Pole Stepping Arrangement and Drop Distribution for Strand Mounted Terminals.

(1) Describe the general features of cable terminals used for pole or wall mounting. What pair sizes are commonly employed? What is the advantage of using 3- and 6-pair terminals?

(2.) Why are protector blocks and fuses needed in certain types of cable terminals? What is the purpose of using cast resin in binding post blocks, also "fuseless" type protection?

(3.) Explain the construction of a typical cross connecting terminal.

(4.) Explain the proper way to connect the terminal binding posts for polarity and proper order of pair count. What could be the proper way to run drop wires into a pole mounted cable terminal to facilitate future changes?

(5.) Aside from providing protection at junctions of cable with open wire, what, in your judgement, is the most important measure to prevent damage to cable pairs? What factors should be considered in stepping cable terminal poles? State your preference for the kind of steps to use near the base of the pole.

(6.) What advantages are claimed for strand mounted terminals? Describe the construction of the Cook Stranterm and explain its unique protection feature.

(7.) Describe the use and installation of the Cook Splice-Maker.

(8.) Describe the construction of the Reliable ST-Type strand mounted terminal. Show the difference between the Reliable protected and unprotected types and indicate the type of protection employed.

(9.) Discuss the Reliable Neoprene Splicing Sleeve. Demonstrate its advantages from the standpoint of labor savings and ease of installation.

(10.) Explain the proper stepping procedure for poles with strand mounted terminals. In your opinion, what is the most desirable method of distributing drops from a strand mounted terminal?—***John S. Reed***

Reviews

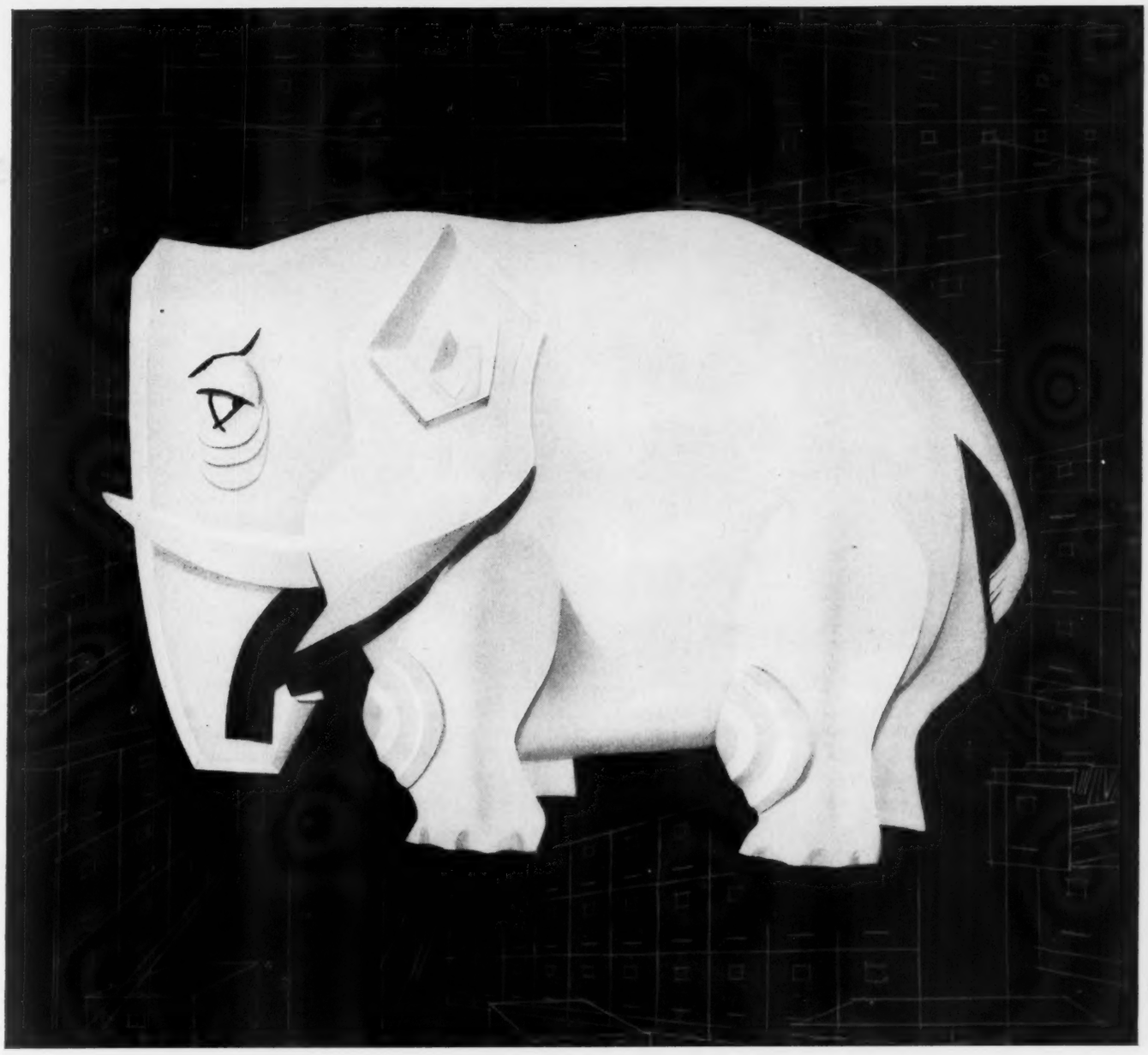
"ELECTRONIC ENGINEERING," by Samuel Seely, professor and chairman, Department of Electrical Engineering, Syracuse University. McGraw-Hill Electrical and Electronic Engineering Series. 525 pp., 6 x 9, illus., $8.00.

Here is a detailed discussion of a large variety of electronic circuits which are important in such diverse fields as radar, television, electronic control and instrumentation, and computers. The book begins with a general introduction to tubes and tube circuit principles, and then proceeds into a detailed consideration of the more important electron tube circuits. Emphasis is placed on the physical and mathematical analyses.

* * *

Transfer Files

NEW LITERATURE from Dolin Metal Products, Inc., describes the new "G300" Nylon Glide series transfer files. The space-saving "G300" series is designed with minimum outside dimensions, channeled drawer, nylon glide bearings for smooth, quiet drawer operation, duo-vision card holder enabling the use of either 2x3 or 3x5 cards and a drop handle permitting greater aisle widths. Six of the eight sizes are 2 drawer files. It is claimed that this low cost series is ideal for low reference records.



this white elephant is made of paper!

Are you feeding a paper pachyderm? No joke if you are, for the excessive costs of handling your company's records can be eating deeply into its profits.

How long since you took a look at your personal files, your file room, at your record storage area? Are you keeping records you no longer need? Are some of your active records really only *semi-active?* Is the flow of vital information from files impeded by inefficient systems or equipment, by uncertain indexing, by slow filing and slower finding? Is microfilming a mystery to you?

It's time for you to measure the savings possible, to rediscover the economy and efficiency of modern record management methods. Remington Rand has dollar-saving answers for you, in a package called "Records Management Roundup." This is know-how for you to use in getting rid of your costly paper elephant. Right now, write for this comprehensive package. Ask for X1564, Remington Rand, Room 1564, 315 Fourth Avenue, New York 10, New York.

Remington Rand... *the finest in business machines, systems and equipment*

DIVISION OF SPERRY RAND CORPORATION

Station growth of your company is of interest to citizens of your community. Photo above, showing installation of 20,000th telephone at Elkhart, Ind., was featured in newspaper stories of the event.

"Meet The Press"

By BILL BROOKS,
Public Relations Director,
General Telephone Co. of Indiana, Inc.

"Newspaper editors and reporters cannot possibly tell the community of telephone company developments unless they are given the information . . . . "

THERE IS a lot more to building and maintaining cordial press relations than getting free publicity. Let's take newspapers first.

Telephone companies can do much more than they have been doing to make themselves good friends and helpers to local newspapers. The average company, in the first place, takes too leisurely an approach in getting its news to the editor. Daily newspapers — and even the weekly papers —have deadlines beyond which they cannot efficiently operate.

One of the quickest ways to alienate editors and reporters is to telephone them a few minutes past their news deadline and say, "Here's a news item about telephone service which will affect the entire community"

Therefore, the first tip in this treatise on press relations is: Know the news deadlines of all the newspapers in your exchange areas.

This article could have begun with a generalization but *Telephone Engineer & Management* readers are interested in practical tips and this business of deadlines is one of the top two matters in your relations with newsmen.

If a generalization has to be included — and, from my personal experience on two daily newspapers, this one must be mentioned — it is the general statement that many telephone companies do not have half as much contact with their newspapers as they could and should have. Just as telephone offices cannot know of some cases of trouble unless subscribers tell them about it, so newspaper editors and reporters cannot possibly tell the community of telephone company developments unless they are given the information.

In three years of newspaper work on two Hoosier daily papers as telegraph editor, city council reporter, front page editor, and columnist, not one telephone company representative brought me one word about expansion or improvements in service or personnel or any other phase of

Recognition of employes does double job: Spreads good name of company and boosts employe moral. Typical news stories illustrated above are (left) presentation of service pins by General Tel. Co., of Indiana and (right) distribution of tickets for telephone dance sponsored by employes' club. Local papers carried both stories.

telephony in the local area.

You might say, "Well, apparently everyone was happy with telephone service in those areas and the telephone company didn't have any explaining to do, so why bother the newspapers?" Wrong. If everyone in those communities had been happy with every phase of telephone service (which is highly doubtful in this querulous age), then the telephone company had a priceless opportunity to point out through news releases how much time, effort, manpower, and money had gone into bringing the community such sterling service.

And that's one of the chief reasons for the need for a public relations program: Telling members of the public they are getting the best possible service at the lowest possible cost. They may be getting such service, but if they are not *told* that they are, they will soon wonder why their service is not being constantly improved.

Does this apply to small towns as well as large ones? Of course, and here's why. Telephone company folks in small towns know well enough how fast a rumor can start and become spread around. The quicker any unfavorable rumors are stopped, the better will be the public relations program of the smalltown telephone company. And the smalltown telephone folks have the advantage of being able to know more local newspaper personnel and know them better.

Will Rogers, homespun spokesman of the American small town, said, "all I know is what I read in the papers" Newspaper readers, whether in Podunk or Metropolis, believe what they read in the papers. So, get that rumor stopped by a prompt and readable news release.

But the primary reason for establishing cordial relations with your newspapers is not to kill adverse rumors. The reason is to get the community on your side so that if, for example, you are compelled because of rising costs to apply for a rate increase, your subscribers will realize there is some justification for it. There are other reasons, of course. Keeping the public informed of present service expansions and improvements and plans for more in the future will give them the idea that you are sincerely looking out for their welfare and not simply trying to boost your earnings positions.

Contacts

WHAT KIND of newspaper contacts do you want? Have coffee with the publisher every morning? Invite the entire editorial staff out for a picnic? Buy a display advertisement in the paper every week? Give every newspaper employe a Christmas gift?

All of these may be practical in your particular area. Then again, all of these approaches may be of no help at all in getting the public on your side.

Our company tries to build up healthy newspaper contacts with this program:

(1) *Local commercial managers are* our chief contacts with newspapers. After all, the commercial manager makes most of the public appearances and is the one local folks want to talk with when they have complaints or suggestions on service.

(2) *News releases must be factual, timely, and interesting to a lot of readers.* We urge that any story for the papers have the main idea in the first paragraph and that anything that looks remotely like advertising be omitted. A news story cannot "promote" anything but should inform — what, where, when, how, who, why. Names, dates, what is being done, why it is being done and according to whom in the company. Newspapers want sources for information so the story won't look like a rumor rephrased to fill up space.

(3) *Include photographs whenever possible.* We urge our commercial managers to suggest that the newspaper send a photographer out for pictorial treatment of the event — erecting new poles, veterans at a service pin dinner, opening a new building, etc. If the newspaper has no photographer or if their photographer has another assignment at the time, perhaps someone in the company can take a picture for the newspaper to use. A picture is worth ten thousand words. It catches the eye and describes things better than any words. If the newspaper has picture-developing facilities, let them develop the pictures.

(4) *Maintain frequent personal contact with newspaper personnel.* We ask the commercial managers to know by face and name the editor, publisher, city editor, and as many reporters and feature writers as possible. The publisher, while important at the top level, usually does not write the stories, so we urge that the city editor and reporters get most of the attention. We urge the commercial managers to be available to newspapermen at all times and under no circumstances to be "too busy" to

Telephone Time

Last month the telephone industry gained a new voice when "Telephone Time," an absorbing series of true-life dramas, made its debut coast-to-coast on the CBS television network.

Taken from life itself and narrated by the well-known storyteller John Nesbitt, these warm dramatizations will bring the telephone message to millions of television viewers in areas served by America's telephone companies. The program will widely strengthen the impact of telephone advertising. It will be of benefit to the whole telephone industry. Continuing week in and week out, "Telephone Time" should make America more *telephone conscious* than ever before.

NEW BELL SYSTEM SERIES BOWS ON CBS-TV

Above is JOHN NESBITT, one of America's great storytellers and five times an Academy Award winner for his memorable "PASSING PARADE" movie shorts. He introduces each story on "TELEPHONE TIME."

Below is a scene from the May 27th drama, "THE EMPEROR NORTON." This amiable old gent styled himself the Emperor of the United States and made the title stick!

talk to them on the telephone. Newspapers have deadlines and deadlines cannot wait. A ten-second telephone call may mean the difference between an attack on the company and a story praising it for its progressive attitude toward civic improvement.

(5) *Keep as many news stories as possible on a local basis.* The public relations department in our company headquarters at Lafayette sends out some releases directly to the newspapers (such as the announcement of our president being appointed to the presidency of another company within the General System), but we prefer to have the local commercial manager quoted in most of the news releases and to have him take the release to the editor personally so he may answer questions the editor or reporter may have.

These points, then, are the basis of our public relations program with the newspapers which are based in our 71 exchange areas.

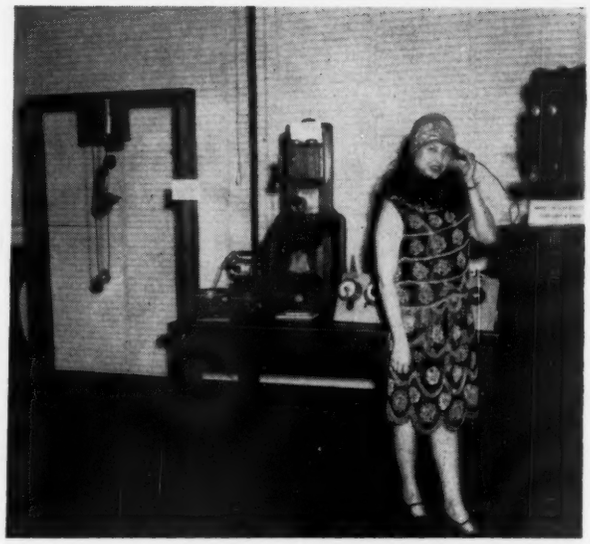
There are, of course, metropolitan newspapers which, by virtue of their extended circulation area, occasionally publish releases which concern our properties. Our nearest exchange to Indianapolis, for example, is 20 miles from that city but the three Indianapolis papers circulate far beyond the city limits and are vitally interested in boosting their suburban and rural circulation. Hence, the "state editors" of these papers like to know about dial conversions and other improvements planned and accomplished within a radius of approximately 60-70 miles.

Press Services

PRESS SERVICES — Associated Press, United Press, International News Service — send news and feature stories to dozens of papers over the teletype wires. They are interested in news items which will affect or entertain a majority of persons in a community. If there is a wire service bureau in a large city near you, get acquainted. They can use photos, too.

An example of press service cooperation and interest is the case of Miss Audrey Miller, a woman who lives in our Tippecanoe, Indiana, exchange. Audrey is 31 years old and has been paralyzed from the neck down since the age of 15. Despite this handicap, she is local correspondent for four nearby newspapers and can operate, by means of a special mouthpiece, an electric typewriter and a hands-free telephone.

A photo of Audrey was well received by most of the newspapers in our exchange areas. The Associated Press and International News Service in Indianapolis sent the story and photo out to their Hoosier subscribers and the photo was even picked up by INS-served papers in New England, Illinois, Minnesota, and Ohio. An AP photo appeared in a Chicago paper.



Mrs. BETTY ERLENBACK and antique telephone display at Lafayette open house, 1955. Papers like pictures with pretty girls, dogs and babies.

Stories like the Audrey Miller release don't appear every day, but you can do a lot more with a good news or feature item than merely give it to the local papers. But be sure the local papers get it first.

There is no reason to neglect weekly newspapers simply because they publish only once every seven days. Weeklies generally have fewer employes and fewer pages than dailies which means any news and feature items must be of definite local interest in order to attract the editor's attention. It is important to include names in releases for use by both dailies and weeklies. Names are news and people are always more interesting than equipment.

Preparing The News Release

IN PREPARING the news release for newspapers, whether daily or weekly, make sure it's typed, double-spaced on white paper and on only one side of the sheet of paper. Confine the story to one page if at all possible. If the article goes beyond one page, type the word "more" at the bottom of each page except the last one. Write the word "Telephone" or some key word at the top left of each page. This helps the editor if the pages become separated while in the back shop (where the news is put into type by linotype operators).

If you submit photos for newspaper use, don't bother with blurred pictures because (1) few papers will use them if they aren't good clear shots and (2) even if the papers use them, people or objects which are unrecognizable because of poor light-

As new housing developments spring up in suburban and rural areas, people moving into these housing developments want to know when they will get telephone service. Keep them posted by helping newspapers get photos of work as it progresses.

ing or bad focusing represent so much wasted space in the paper. And if the editor doesn't feed bad about using a poor photo before publication, he will certainly kick himself when he sees the published picture come out as a meaningless blob of paper and ink.

Story Ideas

ASSUMING that you want favorable newspaper publicity, what kind of material makes a good story? Here's our idea checklist:

(1) New construction and installations.

(2) Important purchases made locally.

(3) Large company tax payments.

(4) Expansion of telephone service.

(5) Extension of rural service.

(6) Public talks by company personnel before clubs, etc.

(7) Promotions, transfers, new jobs, new employes, service anniversaries and service pin dinners for employes, retirements, employe activities.

(8) Recognition of employes for public service.

(9) Telephone family theme — several members of the same family working for your company.

(10) Reminiscences of a local telephone old-timer.

(10) Feature stories on interesting behind-the-scenes telephone jobs.

(12) Human interest stories on interesting angles of telephone service — such as a child sick at home keeping up with classwork by means of a school-to-home unit — and stories about telephone people with unusual hobbies or travel experiences.

(13) Company-sponsored tours either during open houses or when special group is taken through building (Boy Scouts, Business and Professional Women, Chamber of Commerce directors, Lions Club, etc.).

(14) New directories being distributed. Try this: A release stating directories will be distributed next week, then a release stating they are being distributed, and finally a release stating all directories have been distributed (include in release any data new in directory which would effect a large number of persons).

How about a feature story on the number of Smiths, Browns, Joneses in the directory? Remember, names are news.

When rainstorms or other disasters knock out telephone service, be sure your newspaper is informed that your crews are on the job restoring service.

Naturally you will see some stories in the papers which you don't want in there, but take them in stride. If the local paper publishes a red-hot letter demanding better telephone service, look into the matter, but don't get into a verbal shooting match with the subscribers by writing the paper a letter of rebuttal. Remember, the newspaper will always have the last word and they usually align themselves on the side of the public.

Here are some tips on what *not* to do in trying for company publicity:

(1) *Don't ask the newspapers for a "break."* That's a sure sign you're in trouble and can't get out of it gracefully.

(2) *Don't write releases that are over the reader's head.* Technical language comes easy to the telephone veteran, but the poor reader doesn't know whether a phantom circuit is a carrier or a midnight horror movie on TV. Even the word "trunk" doesn't mean much to the ordinary non-telephone person. Simplify all language but don't abbreviate — PBX is gobbledygook to John Public; make it Private Branch Exchange.

(3) *Don't give a reporter money.* Christmas presents of merchandise are acceptable (unless the publisher has a policy against it) but money gifts can get both you and the reporter in trouble.

(4) *Don't expect newspapermen to get excited over handout releases.* If the story is worth printing, they will see that in the first paragraph or two. Don't assume the reporters are familiar with everything in the story — ask them if they have any questions.

(5) *Don't try to cover up mistakes by distorting the truth.* If reporters ask questions, give them factual answers, emphasizing that your company is doing everything in its power to provide everyone with the best possible service at the lowest possible cost.

Advertising in newspapers is a matter to be settled by the individual company and we cannot recommend what nearly 5,000 companies should do in ads to implement news and feature stories.

All our company's regular newspaper advertising (and national magazine ads as well) are handled by an advertising agency in New York working with our General System director of public relations. General of Indiana benefits from semi-monthly newspaper ads mailed to 26 weekly papers and 11 daily papers which circulate in our 71 exchange areas.

Our Indiana company augments this advertising by special ads for such occasions as: (1) Open houses, (2) Disasters affecting most or all of a community — storms, floods, etc., (3) Directory sales canvassing and directory closings.

If you are confronted with an occasion where a display advertisement would help inform subscribers on an important matter, remember to check on the newspaper's advertising deadline. The ad deadline is nearly always earlier than the news deadline. Some daily papers require wording for display ads (as contrasted with classified ads) to be given to the paper's advertising department 24 or 36 hours before the time the newspaper goes to press. Any art work — photos, drawings — or special composition with many kinds of type will take even more time.

The trend in advertising in the telephone industry is toward sales. You can promote colored telephones, extension telephones, coil cords, loud

gongs, hands-free telephones, school-to-home units and many other special telephone services by display ads in daily and weekly papers.

Some telephone companies like "institutional advertising" wherein no actual type of service is promoted. These display ads, appearing more often in magazines than in newspapers, emphasize the role the company plays in the life and welfare of the community, state, and nation.

You can obtain advertising materials and ideas from the Telephone Advertising Institute, 205 North LaSalle St., Chicago 1, Ill., which also distributes to the entire industry tie-in material in connection with the national advertising program of the U. S. Independent Telephone Association. State telephone associations and the USITA office, 438 Pennsylvania Building, Washington 4, D. C., are happy to help solve newspaper advertising and publicity problems and suggest ways to help keep your subscribers informed of your progress in providing them with the best possible service at the lowest cost.

There's a poem that goes —

"The constant drip of water wears away the hardest stone
And the constant gnaw of Towser masticates the toughest bone
And the constant cooing lover carries off the blushing maid
And the constant advertiser is the one who gets the trade."

Telephone companies in this rapidly expanding economy are competing for the consumer's dollar with all other types of business. If advertising can help your company get some of those consumer dollars, then you should investigate the use of some display ads in your local paper.

Remember, too, that it's the advertising dollar that keeps the newspapers in business, not the nickels and dimes from the newspaper subscriber. The local newspaper publisher certainly will not think less of you if you advertise in his paper now and then. Chances are your news releases will get a little better treatment if you are a regular advertiser, although you should never throw this up to the publisher if an adverse story about your company appears in the paper. Remember, he doesn't HAVE to take your advertising either. Even a veiled threat to a publisher is an invitation to disaster — for you.

Radio and TV

NEWS AND FEATURE stories about your company and its service, personnel and subscribers can get radio and television treatment at no cost to your company. Your local radio or TV station will, of course, be competing with your local newspaper, so it is up to you to decide which should get the news story first. (You may give it to the paper and the radio-TV station at the same time, but remember that the radio-TV boys can get it on the air before the newspaper can get the story in type and out in the homes).

In 1955 our company celebrated its 25th anniversary with a series of open houses. An Indianapolis TV station devoted several minutes on a popular Sunday newscast to our anniversary because of an eye-pleasing gimmick — a pretty girl dressed in the now-ridiculous clothes of the 1930 era. The goodlooking girl, one of our commercial representatives, showed televiewers how some ancient telephones operated, while the announcer "tied in" the antiquated instruments with the progress in telephony from 1930 to 1955 and described the growth of our company during the same quarter century.

Prepare a news release for radio or TV use in the same manner you would for newspaper use. Memorize or jot down on a "publicity master list" the broadcast times for local newscasts so you will be sure to get the information to the radio or TV people at least fifteen minutes before broadcast time.

If a local TV show concentrates on interviews with local folks, suggest to the program director that he have some telephone folks on the show for a discussion of one or more of these topics: Telephone manners, history of the telephone, amusing incidents in the working day of a telephone company employe, what's new in telephone equipment, locations of expansions and improvements of your telephone service and what it will mean to the local citizen. Remember, keep it local!

Spot announcements on radio and television in medium size cities and small towns can help you do a publicity job and sell telephone service. These "spots" vary greatly in cost, depending on the size of the city or town, coverage, power of the station, etc. A radio station in one of our exchanges (population of about 50,000) charges $5 for a 60-second commercial on a one-time basis and $3.50 a minute if the 60-second "spots" are contracted on the basis of at least five times a week. Its TV rates for 60-second commercials are $30 apiece or $25 apiece if contracted on the basis of five a week. It is a UHF station, however, not VHF. VHF rates are higher because more TV sets are equipped for VHF reception.

A powerful Indianapolis TV station charges about $150 a minute for 60-second "spots" on its VHF channel but its population coverage is several hundred thousand persons. Repeat "spots" are sold on a reduced rate.

One radio station in our state this year offered a multi-sponsor package with seven sponsors paying $1,400 each to back the local minor league baseball team through a schedule of 126 games. Each sponsor was to receive a name mention in the opening and closing format of each game and each sponsor was to be the basic sponsor for every seventh game with a minimum of 12 commercials in the game of which he is the basic sponsor.

Good press relations — whether you want to emphasize newspapers, radio or television, or all three — accomplish TANGIBLE things. Good press relations get your thoughts and programs over to the public, those marvelous people who pay the bills. Well-conceived contacts with the press spread the good name of your company and give your subscriber the welcome idea that you are a living, breathing, tax-paying part of the community.

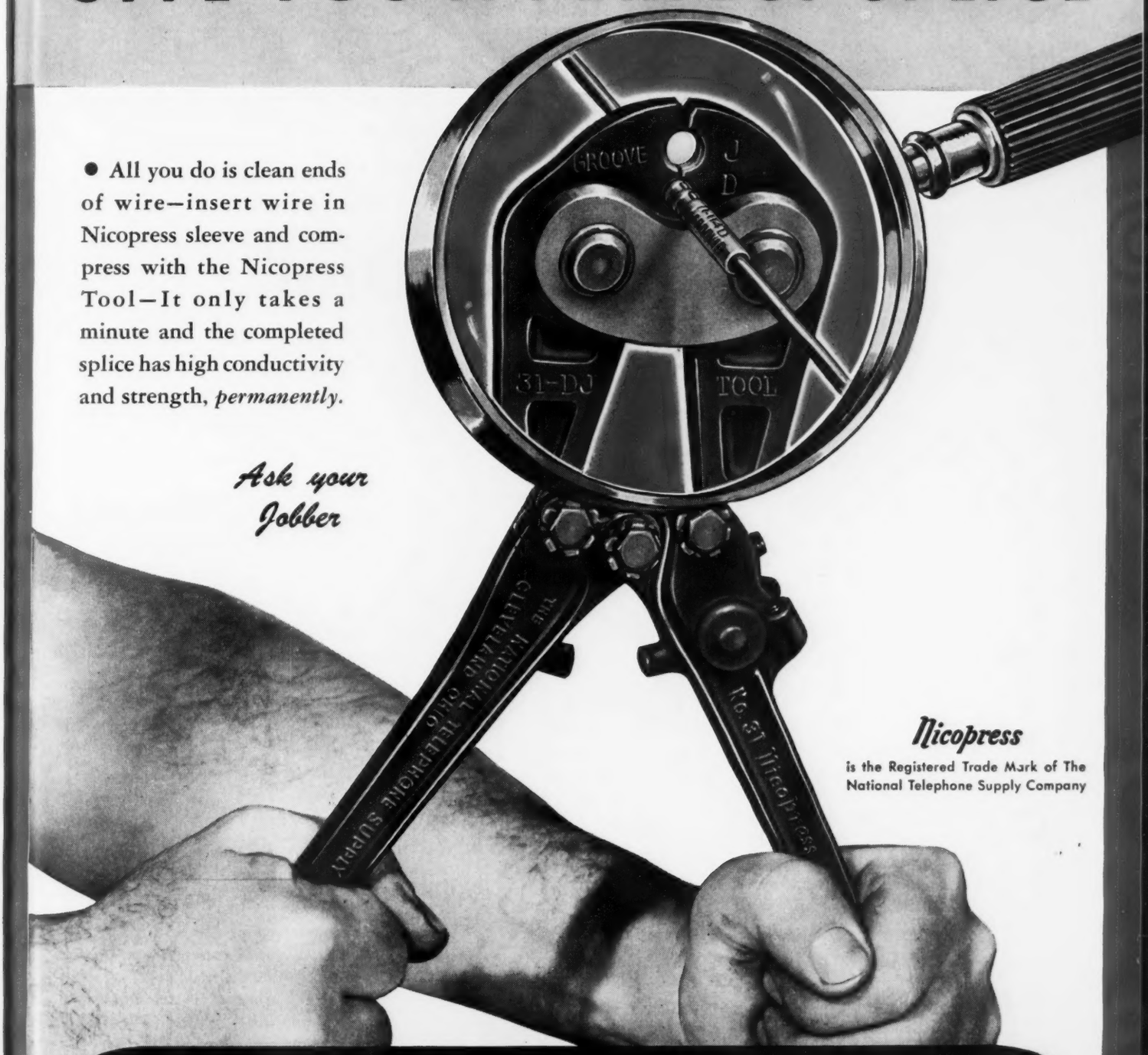
Good press relations enable you to sell more of your services to more people. A "good press" helps you recruit employes. It helps you pave the way for a rate increase.

Invite newspapermen, radio-TV announcers and program directors into your buildings, show them every phase of every department. If you can't think of any ideas to glamorize telephony, they probably can if they are given the chance to see our fascinating world of telephone work in action.

You might remember this little jingle:

"Early to bed, early to rise . . .
Work like the dickens and
PUBLICIZE!"

THE *Nicopress* SLEEVE AND THE NICOPRESS TOOL GIVE YOU A PERFECT SPLICE



- All you do is clean ends of wire—insert wire in Nicopress sleeve and compress with the Nicopress Tool—It only takes a minute and the completed splice has high conductivity and strength, *permanently.*

Ask your Jobber

Nicopress
is the Registered Trade Mark of The National Telephone Supply Company

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

THE NATIONAL TELEPHONE SUPPLY COMPANY

"Training For Dial"

By RUTH E. RICHARDS

WHEN THE ancients said a work well begun was half done, they meant to impress the importance of always endeavoring to make a good beginning. So it is with training of any kind. A good beginning with interest and enthusiasm, on the part of both learner and teacher, portends a successful conclusion. It is our earnest wish that the "opener" for this series has so whetted your interest that you will be eager for what is to follow.

In *Lessons* 1 and 2, a generous introduction to the essentials of toll line dialing was presented, and the new features in successive lessons are leavening in the dough of repeated drills. The oft repeated "practice makes perfect" is certainly true of dialing, provided, of course, that what is practiced is a correct method. And so to Lesson 3.

Lesson Three

Call* 10. *One Switch Call to Manual Ringdown Tributary Reached By Dialing Through Toll Center Equipment.

(a) A call is received for (use familiar example).

(b) The routing directions indicate that (called place) is a ringdown tributary of (toll center) and can be reached by dialing 157.

(c) Select an idle circuit to (*toll center*).

(d) When the dial pilot lights dial 157.

(e) The (called place) operator will answer and ring the called number.

(f) From this point the call will follow the usual routine for handling calls to ringdown points.

Ref: Div. A. Sec. 4, 6.

Call* 11. *Person Call For A Straightforward Tributary Reached by Dialing.

(a) The routing directions indicate that (called place) is a straightforward tributary of (toll center). The route is shown as (EX) 880+ 926.

(c) Enter the name of the Toll Center, the via office, and the dial directions. Enter "sf" following the name of the called place.

(d) Plug into a (direct ckt point) circuit and dial the codes shown in the route space.

(e) When the straightforward order tone (zip zip tone) is received, pass the called number. Explain that supervision will be received and that ringing will be automatic.

Note: In some cases the tributary operator may answer verbally with the name of her office.

(f) When the called station answers announce the call and from this point the call follows the usual routine.

Ref: Div. A, Sec. 2, 8.
Div. A, Sec. 4, 5c & 6.

Note: *Vary the practice on calls to Straightforward Tributary to include address name call, "information" operator reached at Toll Center by dialing TC code* + 131.

Call* 12. *Call to Point Having Two or More Codes.

(a) Answer and record call to (called place).

(b) Refer to bulletin for routing directions.

(c) Shows the route (outlet) 404+ 139+.

(d) Enter route and dial routing codes in the route space.

(e) Take up proper circuit and dial codes followed by called number.

(f) Cut out of connection and proceed with other work.

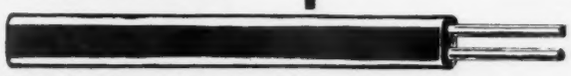
(g) When supervisory signal retires, stamp the ticket for start of conversation.

(h) Two light disconnect received. Stamp the ticket and release both cords.

Note: On some calls an intermediate operator will be encountered in which case through supervision will

BUCKEYE LEADS THE SUPPLY FIELD!

NOW AVAILABLE



NEW Oval Twin Construction
INSULATED
PARALLEL LINE WIRE

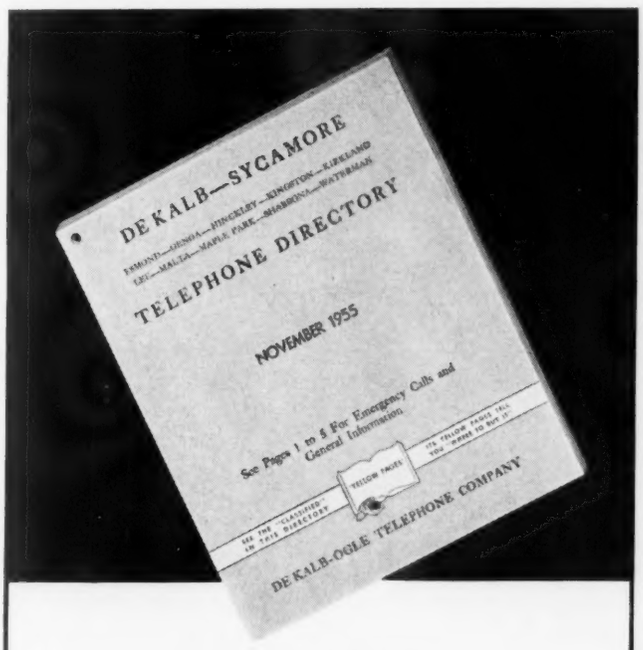
AVAILABLE IN 3 TYPES OF CONDUCTORS
- No. 14 AWG Copperweld
- No. 12 AWG Copperweld
- .083 Galvanized Steel

- REPLACE OPEN WIRE RUN CONSTRUCTION
- USE FOR LONG-SPAN SERVICE WIRE DROPS
- CUT COST—SAVE TIME

Here at last! High strength construction with 2 parallel conductors encased in a highly weather-resistant black Polyethylene insulation. Gives greater and longer service than open wire. Cuts costs to a minimum. It's NEW! It's "HOT"! It's available now at Buckeye!

Send for Circular 356

BUCKEYE TELEPHONE & SUPPLY CO.
1250 Kinnear Rd. Columbus 21, Ohio

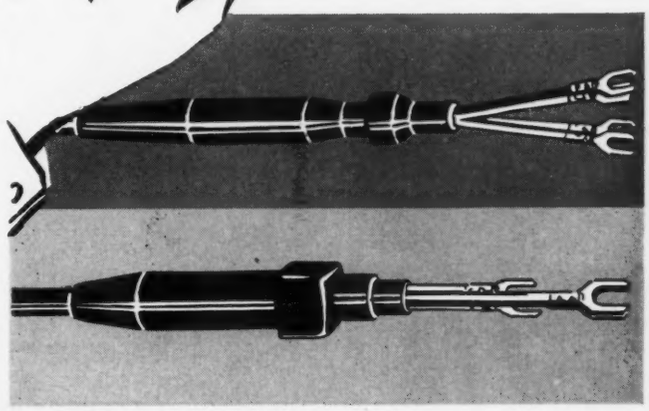

DE KALB—SYCAMORE
TELEPHONE DIRECTORY
NOVEMBER 1955
See Pages 1 to 5 For Emergency Calls and General Information
DE KALB-OGLE TELEPHONE COMPANY

A directory for the
DeKalb-Ogle Telephone Company, Sycamore, Illinois
printed by

R. R. DONNELLEY & SONS COMPANY
350 East Twenty-second Street, Chicago 16

a good installation calls for a good cord

COMMERCIAL
TELEPHONE CORDS
are made better to last longer



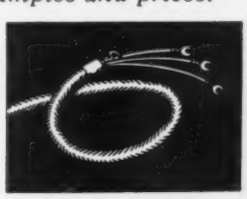
No matter what the installation may be, there's a Commercial Cord to fit it . . . made from the best materials obtainable, to guarantee lasting durability and efficient voice transmission. Select them in the jacket that best suits your requirements:

- **NYLON**
- **NEOPRENE**
- **MERCERIZED COTTON**

- switchboard cords with or without plugs;
- instrument cords; operator's cords;
- retractable handset cords (Neoprene only)

Write for a complete catalog, samples and prices.

COMMERCIAL CORD
& SUPPLY CO., INC.
CLIFTON SPRINGS, N. Y.
Phone: Howard 2-5111



QUALITY CORDS FOR ALL MAKES AND TYPES OF TELEPHONE INSTRUMENTS

not be received. Example: (Outlet) 602+016 (Prescott)

Ref: Div. A, Sec. 2, 8.
Div. A, Sec. 4, 2a.
Div. F, Sec. 6, 7 & 7a.

The following examples of calls, on which the various dialing conditions are encountered, should be set up for the lessons in the same manner as the preceding complete examples. The preface routine is always the same. ie, the recording, securing and entering routing information and such identifying codes as "rd," "vn," "sf," etc.

Lesson Four

Call 13. Call to Ringdown Tributary Reached By Dialing the Toll Center.

(a) Routing directions for chosen example indicate that the called place is a ringdown tributary of (selected toll center) reached by dialing to the toll center for example, 405+240+121.

(b) Select a circuit to (first route toll center) and dial the codes shown.

(c) When inward operator at the terminating toll center answers pass an order for the tributary.

(d) When the tributary office answers pass order for the called number.

(e) From this point the call follows the usual routine.

Ref: Div. A, Sec. 4, 3 to 6 incl.

Give Clearance Review: (This is especially important, since dialing to destination eliminates much of the necessity for clearance, there is a tendency created to ignore the rules for required clearance practices.)

(1) One or no operator is reached, release the circuit. (No clearance required.)

(2) If two operators are reached a cord clip is attached and a ringing clearance is given. Understand that manual toll tandem is not considered an operator in connection with a clearance.

(3) If three or more operators are reached fasten both cords together with a cord clip and give a verbal clearance.

Have operators learn the correct procedure and review them frequently during the subsequent training periods.

Call 14. Address Name Call for Dial Tributary of A One Switch Point.

Example: Record call to Glen Dale, Md. (or appropriate example of nearby point).

(a) Routing directions indicate that Glen Dale is a dial tributary (vn) of Washington, D. C. Enter routing codes (T3) 202+2L+ in the route space, and "vn" following name of called place.

(b) Dial code to reach TTC + 131 to reach information. (Emphasize importance of reaching information at the toll center.)

(c) Information operator answers. Obtain number in usual way, acknowledge, release toll circuit.

(d) Secure available circuit and dial the codes to reach the tributary number.

(e) From this point the call follows the usual routine.

Call 15. One Switch Call — Address Name Call — Reach Information.

Example: Address name call to Peekskill, N. Y.

(a) Routing directions indicate that Peekskill is reached one switch through Chicago code 914+PE+.

Note: Explain that where the city has no central office names, the first two letters of the city name may be shown and must be dialed on all calls to subscribers numbers, but not on calls to operators. Example: To reach an operator dial 914+380+121 (inward) or "131" for information.

(b) Enter the dial codes and dial the toll center information "131" and secure the called number.

(c) From this point the call is handled as previously outlined.

Ref: Div. A, Sec. 2, 4 & 8h.

Call 16. Call to A Point Reached Through Toll Tandem.

Example: A call to Wheeling, W. Va.

(a) Routing directions indicate that the called place is reached through manual toll tandem. Code T2 (CGO) 291 TT.

(b) Dial the code shown.

(c) The order tone (zip zip zip) is heard. Pass on order as "Wheeling, W. Va."

(d) When the terminating toll center answers pass the order for the number.

Note: The order tone on toll tandem is the same as on a straightforward trunk except for the extra splash of tone. The word "zip" is as nearly descriptive of the sound as it is possible to choose. After hearing the tone a time or two, an operator will readily recognize it.

Ref: Div. A, Sec. 4, 3c(4).
Div. F, Sec, 7d(3).

Lesson Five

Call 17. Checking Class of Service on Collect Call — Called Station Is Not a Coin Station.

Example: A call to (distant toll center). (Example: Bradenton, Fla.)

(a) Routing directions indicate that the called place and number are reached by dialing 053+018+. It also shows the symbol "√9" which indicates that the coin box numbers are in the 9000 group and the class of service must be checked.

Explain that if the routing directions show the special sign (check) "√" that the class of service must be checked.

(b) Enter the routing directions and dial the code to reach the TTC followed by the code "131" for reaching information.

(c) Split the connections to talk on the toll cord if the calling station is holding the line.

(d) When the information operator answers, say "This is (your office), 2-9102 a coin telephone?"

(e) The information operator reports that the called number is not a coin station.

(f) Acknowledge and release the circuit; restore the splitting key; take up an available circuit and dial the code for reaching the called place plus the called number.

(g) From this point the call follows the usual routine.

Ref: Div. A, Sec. 11, 2.

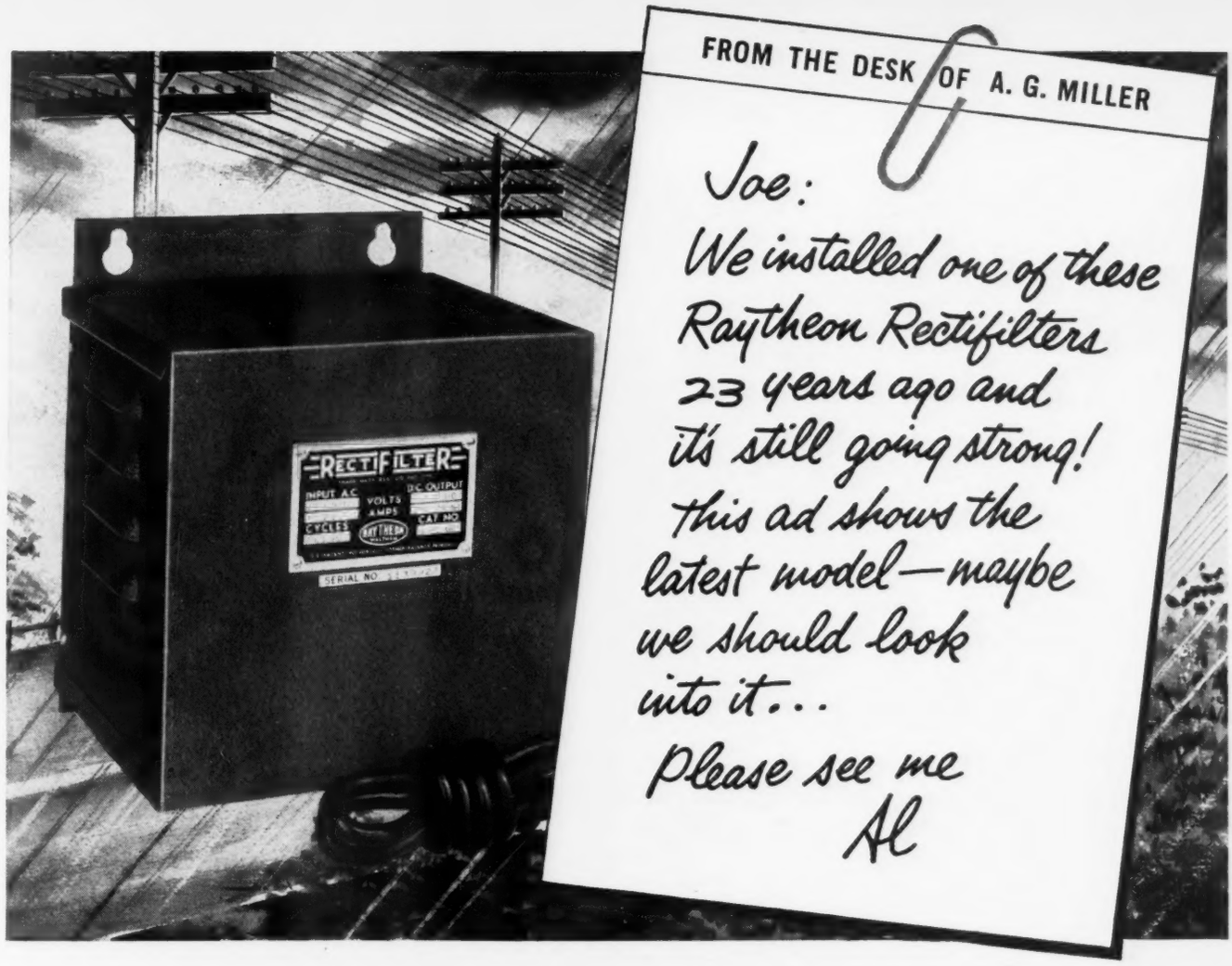
Note: If your position information indicates that the called telephone is not a coin telephone, (that is, the called number is not in the series indicated by a "√") enter "not a coin" in the space for reports; if it indicates that the called telephone is to be checked, enter "check" in the space for reports and proceed in the way that applies.

The same procedure will be followed if the route is obtained from the Route and Rate operator and you question, "Is (called No.) a coin station?"

Call 18. Checking Class of Service on Collect Call — Called Station Is A Coin Station.

Example: A collect call to (distant toll center). (Example: Akron, Ohio)

(a) Routing directions indicate called place and number reached by dialing; enter on the ticket, √9, 0,



How to eliminate power supply problems

Raytheon Rectifilters® are a never-failing supply of D.C. voltage from A.C. sources. Operating entirely without moving parts, these units provide full, filtered, noise-free power to vital telephone equipment.

Raytheon Rectifilters eliminate the need for batteries; operate PBX's and other key equipment; provide 24 volt D.C. for vacuum tube filaments, and operate in series with regular 24 volt central office batteries for toll service.

Because they are conservatively rated, carefully engineered and made of finest quality components, they require an absolute minimum of service and provide many, many years of dependable performance.

Raytheon products for the telephone industry include Rectifilter battery eliminators, Recticharger® battery chargers and Rectiringer® eliminators with 20 cycle ringer—all available from your telephone supply house and Raytheon District Offices. Service and parts are supplied from ten locations throughout the USA. For full details, please write for Bulletin 4-335.

CHECK THESE IMPORTANT FEATURES

- √ Minimum service—plug it in, close the door and forget it
- √ Fully automatic—no moving parts to wear out
- √ Outlasts many sets of batteries
- √ D.C. output voltage closely filtered and stabilized
- √ Compact, easily installed
- √ Ideal for seasonal installations

RAYTHEON MANUFACTURING COMPANY

Equipment Marketing Department, Waltham 54, Mass.

RAYTHEON

Excellence in Electronics

A 4019

construction and maintenance DIGEST

- Wires Shangri-la
- Keep batteries young
- Love this petticoat
- Coiled in color
- Round the clock
- 25-year battery
- Wire saves poles
- These two
- Button, button
- Real cool sitting

Published every month to help you get the most out of your materials and supplies dollar

by C. J. Reynolds, Stromberg-Carlson Company

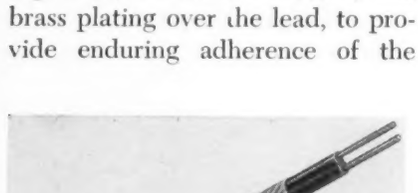
Two dividends are yours when you order supplies from Stromberg-Carlson. First, you get the protection of a double guarantee—ours and the maker's. This assures you of getting the finest products, backed by our 62-year reputation. Second, your support is used to further the art of telephony. We're knee-deep in this industry as a full-time job, not a side line, and your supply business plays a big part and helps us continue our research for new and better telephone equipment.

Here's a drop wire that hides its age

Samples of Teleprene® (neoprene jacketed) drop wires were strung where they would get lots of weather. After nine years, they still looked fresh and undaunted—and tests showed that these wires would give years and years **more** of good service!

The jacket is a tire-tread type neoprene compound which provides excellent resistance to sunlight, abrasion, oils, acid fumes, alkalies and other corrosive chemicals.

Conductors have Teleplate coating: lead, to resist corrosion, and brass plating over the lead, to provide enduring adherence of the high quality buna rubber insulation to the conductor.



Available in parallel (shown here), twin parallel and twisted pair types.

How to stretch out the useful life of your batteries

Keep your batteries charged at just the right level, and they'll give you added years of service.

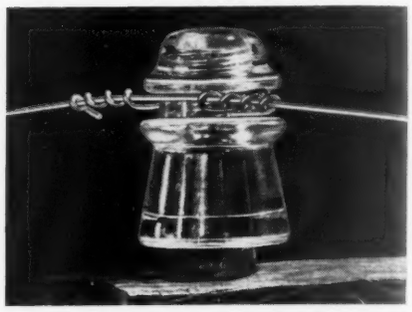
You can maintain the right charge automatically, with the new Raytheon "high-rate" RectiChargeRs .

This constant potential battery charger, like all Raytheon RectiChargeRs, operate 100% automatically. It has special dry disc rectifiers plus an exclusive Raytheon Magnetic Amplifier Control Circuit which maintains precise DC voltage output at any load in the presence of wide changes in AC input voltage . . . increases battery life by eliminating over- and under-charging.

It handles inexpensively all normal power requirements and allows the battery to "stand by" fully charged to meet all emergency demands. You get noiseless current at constant voltage by simple connections to a power outlet and your battery. It is ideally suited for use with systems requiring power for 22/24 cells of battery.

Single-petticoat insulator has *long* leakage path

You get just about the longest leakage path possible with a single petticoat, on this Hemingray Number 17 insulator for medium length lines. It gives you excellent service through all sorts of weather, protects the pin from moisture, and isn't disturbed by sudden or seasonal changes in temperature.



Long petticoat, small size make the Number 17 insulator highly useful.

It's easy to put up, too, because it has a full 7/16″ square groove, over ⅜″ deep, which provides better support. This means you can work faster, and be sure you are putting your lines up to **stay**.

You save money both ways—on installation time **and** maintenance time. Hemingray insulators are made by Kimble Glass Company, subsidiary of Owens-Illinois, and have been the "World standard since 1870."

Retractile cords now in black or color

There's extra revenue in Koiled Kords* retractile cords—the spring-like telephone cords that curl up neatly instead of dangling noose-like from the telephone.

Neoprene jacketed, they fit all types and makes of telephones, and

Available in black or color.

last indefinitely under severe service conditions. Extend to about 5 times their retracted length and return to their original neat coil when released.

Tinsel conductors provide maximum flexibility.

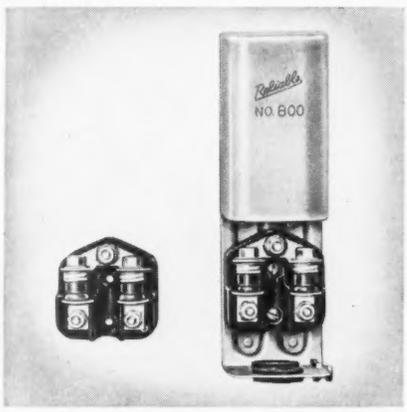
Neoprene outer jacket is smooth, clean, attractive, reduces cord trouble to a minimum.

Cannot fray and is unharmed by perspiration, humidity, oil, water, grease or acid.

*Koiled Kords is a trademark of Koiled Kords, Inc.

Guard your stations with these fuseless protectors

Shown here are two models of fuseless station protectors—both designed to guard your stations 24 hours a day, requiring no maintenance or attention at all.



No. 700 protector—for indoor use.
No. 800 protector—has weatherproof housing for outdoor installation.

The No. 700 is built for indoor use. You'll find its workable design combined with small size are just what you need.

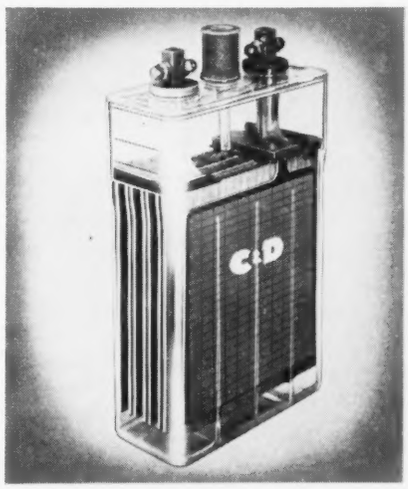
No. 800 is weatherproofed for trouble-free outdoor mounting.

Both models are approved and listed by the Underwriters' Laboratories, Inc., for use where installations meet the requirements of the National Electrical Code (see Article 800). Each of them mounts two Reliable No. 504 self-contained, weatherproofed screw-in type protector units, which house carbon electrodes spaced approximately .0035" for air gap.

Manufactured by Reliable Electric Co. Your Stromberg-Carlson representative is ready to supply them to you.

Battery will live 25 years

A quarter of a century is the expectancy of an extra-life battery made by C & D Batteries, Inc. In full-float service, their PlastiCal (lead calcium grids) battery will serve your power needs faithfully —often well beyond its 25-year expectancy.



It'll be 1979 before you even have to *think* about replacing this extra-life C & D battery, if you install it now!

C & D Batteries' PlastiCell (high tensile, special alloy grids) battery offers reliable power supply at lower cost, with a life expectancy of 14 years.

Save 10-15 poles per mile

A net saving of 10 to 15 or more pole structures per mile is possible where **Crapo** High-Tensile Telephone Line Wire is used in long-span construction. Fewer pole structures mean substantial savings in time, labor and material, and in maintenance.

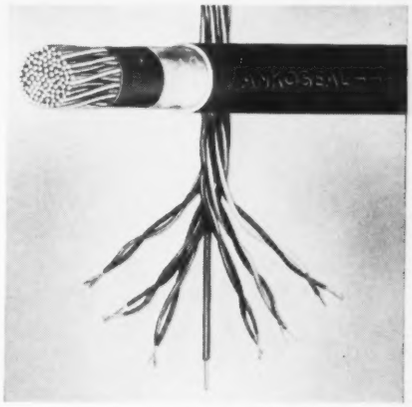
Crapo HTL-135 makes possible spans of 350 feet in heavy, 450 feet in medium, and 500 feet in light loading areas. Its practical economy should be considered for new extensions and where old lines are to be replaced.

Crapo HTL-85 (No. 12 B. W. G.) permits spans of 225 feet in heavy, 325 feet in medium, and 375 feet in light loading districts; provides stronger spans on existing pole structures. Both wires possess superior telephonic transmission qualities.

Choose from these 2 self-supporting cables

Yes, you **do** have a choice in self-supporting cables!

For standard exchange uses, you can get lots of service with the impervious, long-life PVC shield and jacket of Ankoseal type 775-P-SS. It's designed especially for permanent installations.



Exchange cable (top) and rural distribution wire are both easy to install.

And for temporary service, you can't beat the speed and low-cost installation of Ankoseal Rural Distribution Wire. Individual color-coded conductors, insulated with polyethylene with a PVC covering, are cabled around an insulated extra high strength galvanized steel support wire. There is no shield or jacket.

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STROMBERG-CARLSON

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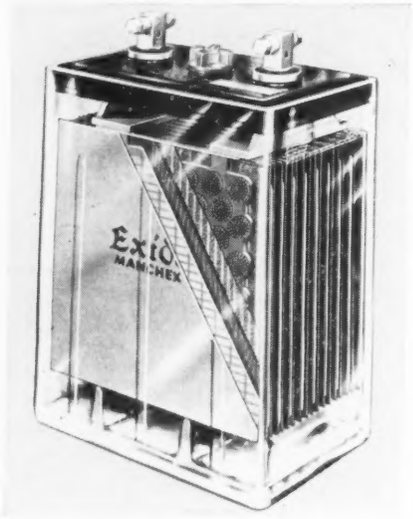
Sales Offices: Atlanta 3, Chicago 6, Kansas City 8, Rochester 3, San Francisco 3.

Continued on Page 80

(Continued from Page 79)

Lead buttons mean lower costs

Only Exide Manchex Batteries have the positive plate with the buttons of corrugated lead tightly locked in the lead alloy grid several times more rigid than pure lead. Because of this outstanding design, the plates resist the mechanical strains bound to develop and retain their shape without growing or buckling. There is an ample reserve supply of pure lead which can be converted into active material as needed.



Cane-seat chair keeps operators cool, comfortable

This operator's chair has a cane seat, which is much cooler, cleaner and more comfortable than other types. It retains all the posture advantages for which Sturgis is famed. It is called the Sturgis SC-240.

The posture-curved, well-cushioned backrest is covered in genuine leather.

The exclusive Sturgis "Follow-Flex" feature automatically adjusts to the operator's every movement, supports her restfully all the time, discourages fatigue, keeps her at top efficiency.

Distributed by

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A DIVISION OF GENERAL DYNAMICS CORPORATION

216+2L+ (TC 216+230+). Check indicates that class of station for the called number must be checked.

(b) Reach called place by dialing the code plus "131" to reach information to check called number.

(c) Split the connection to talk on the toll cord if calling station is holding the line.

(d) The information operator answers.

(e) Say, "This is (your office name, is (cld. pl.) (cld. no.) a coin station?"

(f) The information operator reports the called number is a coin station and furnishes the TX number to which the call should be routed.

(g) Enter class of coin box following telephone number and TX number in space for reports.

(h) Acknowledge and release the circuit.

(i) Restore the listening key. Release the calling party.

(j) Select a proper circuit and dial the codes for reaching the TTC followed by "11" and the TX operator's number. (Explain that the toll supervisory signal retires when the TX operator answers.)

(k) TX operator answers. (Explain that after the TX operator answers she can be recalled by ringing if necessary.)

(l) From this point the call follows the usual routine for a two-ticket call. Supervision is not received on calls completed by a distant TX.

Note: If the information operator does not know the number of the TX release the circuit and again dial the code for reaching the called place followed by 11+50 *or* 11+501, *depending upon whether the TTC has two or three digit TX numbers. (Akron has two digit TX code.)*

Ref: Div. A, Sec. 4 Par 2c.
Div. A, Sec. 11, 2 & 3b.
Div. F, Sec. 4, 7b.

Call* 19. *Dial Code Ends With* 121 — *Inward Operator Answers and Rings Number.

Example: A call to Batavia, O.

(a) Routing directions not shown on switchboard bulletin.

(b) Route operator gives routing directions as "vn, without c of c name, Cgo 513+290+; with c of c name, 513+290+121 (TC 513+290+)."

Training

Training for executive command should begin with the first supervisory appointment, no matter how minor the assignment. With authority comes the sense of recognition and an added impulse to personal initiative. With the authority delegated must go the full understanding of the responsibility accepted and the limits established. If the immediate superior is a person of relaxed manner, the inferior is certain to pick up the suggestion of how to be boss without acting bossy; how to give orders which they seem to be suggestions; and how to command respect without betraying a martinet's sense of personal insecurity.—DUN'S REVIEW.

(c) The called number has a central office prefix, so the code ending with "121" applies.

(d) Reach called place by dialing the codes.

(e) Inward operator answers. Pass called number.

(f) From this point the call follows the regular routine for a manually handled call where supervision is not received.

Call* 20. "121" *Operator Rings Next Office or Terminating Office.

(a) A call is received for Salmon, Idaho.

(b) The routing directions show the route as "Cgo 406+670+121 (Butte, Mont.)

This routing indicates that the inward operator at Butte, Mont. will be reached.

(c) Take up a Cgo circuit and dial 406+670+121.

(d) Butte inward operator answers. Pass order for Salmon, Ida.

(e) Salmon answers. Pass order for number.

(f) At the end of conversation give ringing clearance.

Lesson Six

Call* 21. *WH Party Report — TX Operator Number Known.

(a) A WH report is received on a call from (selected point). The calling party supplies the TX number.

(b) Select a circuit. Dial 11 fol-

NUMBER 45

Double Petticoat. These insulators are employed for all toll and trunk circuits that are greater than ten miles in length.

First choice

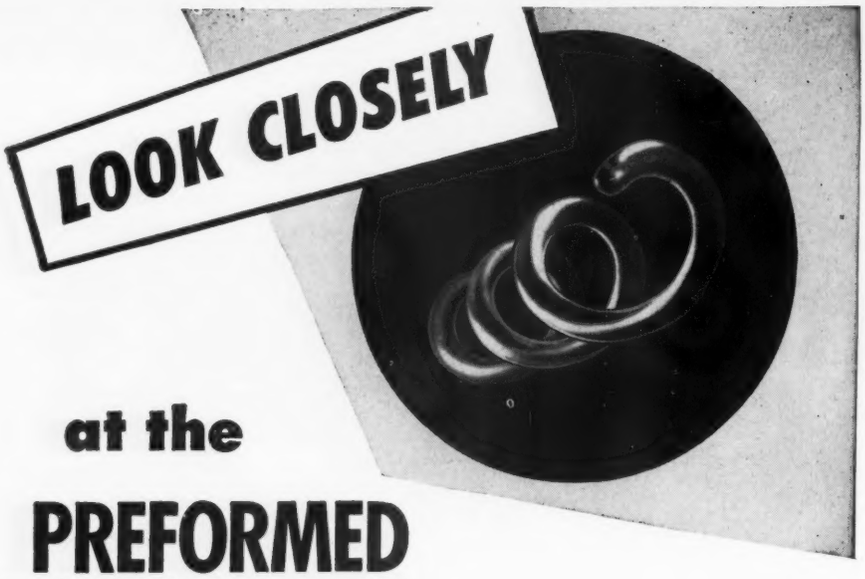
on communication lines of the world

Since 1870, when Robert Hemingray began mass production of screw-thread insulators, Hemingray has pioneered most of the insulator developments to keep pace with the requirements of the communication systems of the world.

Today, as always, Hemingrays are world standard for quality, and most of the overhead telegraph and telephone lines of the world are carried on *dependable* Hemingray Glass insulators. They are a product of Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio.

HEMINGRAY INSULATORS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

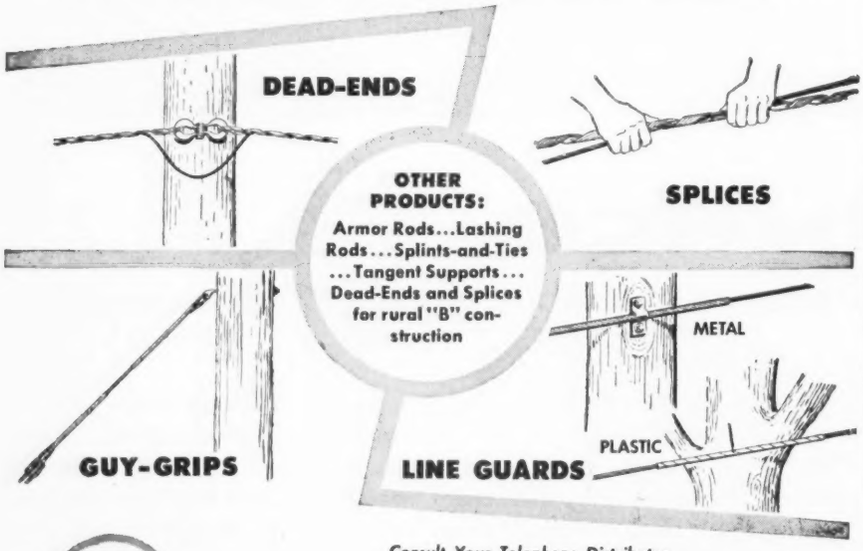


a major advance in line accessory fittings

The Preformed method of producing line accessories is an exclusive new development for the telephone industry. It incorporates the use of Preformed Rods—helically formed within exacting tolerances—to serve varied "fitting" functions all along the line. No more bolts—no compression tools—simplified construction. More than just something new, Preformed Products represent a better, faster and more economical way to *dead-end, splice, support,* or *protect* conductors and strands.

For more information on their exclusive advantages, consult your telephone distributor.

A COMPLETE LINE FOR THE TELEPHONE INDUSTRY...



Consult Your Telephone Distributor

Made in accordance with or for use under one or more of the following U. S. Patents: 2,275,019; 2,587, 521; 2,609,653; 2,691,865; other patents pending.

PREFORMED LINE PRODUCTS COMPANY
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lowed by the TX number. Example: "11+134"

(c) When the TX operator answers and the toll cord supervisory signal retires report, "(called place) WH on line."

(d) If the connection to the distant point will require ringing or verbal clearance, add the clearance directions to the report, saying for example, "Ringing clearance required."

(e) When the distant operator speaks to and receives a response from the customer, cut out of the connection. Understand that the distant operator is responsible for completing the call and giving any reports to the customer.

(f) Supervising and disconnecting. Proceed in the regular way for an inward connection.

Note: A report ticket may be written if it is deemed desirable for the purpose of entering routing instructions or because of NC condition.

(g) Scratch and file any report ticket written.

Ref: Div. A, Sec. 4, 2c.
Div. A, Sec. 16, 1, 2, 4.

Call 22. WH Party Report — TX Operator Number Not Known.

(a) A WH report is received on a call from (example) Detroit, but the calling party does not know the operator number.

(b) The routing directions indicate the route to be 313+ (operator code).

(c) Select a (first route) circuit and dial the code to reach (Detroit) plus the universal TX number which is "11+50."

Note: If it is known that the OTC has 3 digit TX numbers, the universal code is "11+501" *(offices having 3 digit TX numbers are Chicago, Cleveland, O., New York, Oakland, Calif. and Philadelphia, Pa.).*

(d) When the TX operator answers pass the WH and proceed as on the foregoing call.

Ref: Div. A, Sec. 4, 2c (1)
Div. A, Sec. 16, 1.

As you study this material and get your individual office guide prepared with specific examples, we hope you will look forward to the next article, which will complete the coverage of Outward work and give examples for Special Services and Route work training. See you next month.—*Ruth E. Richards.*

Weldon Case Heads Ohio Independents

MORE THAN 600 delegates and their guests, representing 155 Ohio Independent telephone companies, gathered in Columbus, Ohio on March 27-28 for the 61st annual convention of the Ohio Independent Telephone Association. The convention this year was shortened to a day and a half to conserve the time of telephone executives during one of the busiest periods of expansion and plant improvement in the history of Ohio Independent telephony.

Keynote speaker for the convention was Robert L. Moulton, Galion, chairman of the Public Utilities Commission of Ohio. Mr. Moulton used the convention theme, "Service Is Attitude," as the subject for his talk. He stressed the point that good employe attitudes are the basis for efficient and friendly telephone service.

During the luncheon program on the first day of the convention, delegates heard a talk by Francis X. Welch, editor of *Public Utilities Fortnightly*, Washington, D. C. A nationally recognized authority on governmental regulatory matters in the telephone industry, Welch's talk was on the topic "Independent Telephony Looks Ahead."

Mr. Welch told the audience that there are now 52,000,000 telephones and that by 1975 there may be 100,000,000. He pointed out that the same increase will be true for automobiles, highways, refrigerators, television sets and all other kinds of goods and services. He then posed the question, "What for, and to what purpose." Welch said this is a serious responsibility which the businessman must share with educators and legislators.

Continuing, he said we hear talk of more mass production, automation, and a shorter working week. He then asked what are we going to do with the benefits of more leisure hours and modern mass conveniences? These are serious social and cultural, as well as economic questions which go into the "know-why" as distinguished from the "know-how" of which we Americans are so proud. He said that one man's "why" is not the same as another man's "why," and that one person may be moved by a personal philosophy, another by a religious ideal, but that the main point is that everyone is able to share and develop individual ideals side by side with our neighbors. We can do this, Welch continued, only because we have a way of life, a system of government, an enterprise economy which makes us free to do so, encourages us to do so, and furnishes to each of us, if we are willing to work for it, the wherewithal to do so. No other system on earth, he concluded, can make that claim, and we should all recognize it, be proud of it, and export it as the real goal of our American way of life.

Speakers featured during the afternoon plant, traffic and commercial conferences included Thomas R. Smith, Mansfield (Ohio) Telephone Co.; Norman Treadon, Ohio Bell Telephone Co., Cleveland; F. H. Wood, Western Reserve Telephone Co., Hudson, Ohio; Hillard L. Smith, Dow Chemical Co., Midland, Mich.; T. B. Collins, Jr., Automatic Electric

Left to right: RALPH F. MATEER, president of the Ohio Independent Telephone Association and general manager of the Warren Telephone Co., talking with DR. CLARENCE MANION, South Bend, Ind., guest speaker at the 61st annual convention banquet, and CLARE E. WILLIAMS, president of the General Telephone Co., of Ohio, Marion.

Sales Corp., Chicago, Ill.; George E. Brewer, General Telephone Service Corp., New York City; and a skit performed by Jack Cluen and Miss Marie Jellison, Ohio Telephone Service Co., Warsaw, Ind.

Highlight of the first day of the convention was the banquet, and guest speaker for this occasion was Dr. Clarence Manion, South Bend, Indiana, nationally known authority on constitutional law and former Dean of the University of Notre Dame Law College.

Dr. Manion currently is co-chairman of the patriotic organization "For America," and is heard each Sunday evening in an analysis of national and world news on the Mutual radio network.

Speaking on the subject "A Declaration for Independents," Dr. Manion told the convention group that we cannot defeat Communism in Europe and Asia by surrendering to centralized consolidation of power in the United States. He pointed out that in his opinion the de-centralization of power, implicit in our Constitutional State Rights, is our best defense against Communism.

He further stated that our generation has been bombarded with propaganda which stresses the advantages of big consolidation in industry, labor, education, and last but most important of all, in government. Nevertheless, he stated, we are learning the hard way that there is no inherent merit in mere magnitude. On the contrary, an across-the-board consolidation of power in all fields including government, is the precise formula for the establishment of Communism and the destruction of human freedom. In conclusion, Dr. Manion told the group that freedom means limited government, but government can only be limited where people first limit their own appetites and activities by moral observances.

Continuing the convention business sessions on March 28, Weldon W. Case, general manager of the Elyria (Ohio) Telephone Co. was elected president of the association for 1956-57 during the annual organizational meeting of the Board of Directors.

The board also elected James I. Hunt, president of the Home Telephone Co., Middlefield, as the association's vice president, and Daniel W. DeHayes, was named to fill the newly created association position of executive vice president. DeHayes was also re-appointed as secretary-treasurer.

New officers of the Ohio Independent Telephone Association are shown talking with EDWARD McFAUL, Chicago, who was the luncheon speaker March 28. Shown left to right are WELDON W. CASE, president of the Association and general manager of Elyria Telephone Co.; Mr. McFaul; JAMES I. HUNT, vice president of the association and president of the Home Telephone Co., Middlefield; and DANIEL W. DeHAYES, executive vice president and secretary-treasurer of the association, Columbus.

In addition, Howard Wright, general manager of the Ashtabula (Ohio) Telephone Co., was elected as a director of the association to fill the unexpired term of Richard N. Cole, vice president of Ohio Consolidated Telephone Co., Portsmouth, who resigned.

The membership also re-elected unanimously as directors Weldon W. Case, Elyria; H. F. Clapper, Greenville; Robert D. Gott, Wellington; Rolland S. Jones, Athens; George B. Quatman, Lima; and Yetter Snyder, Chardon.

The 1956-57 Executive Committee of the Association, named by the board of directors includes: William C. Henry, Bellevue; George B. Quatman, Lima; Gustav Hirsch, Columbus; Ralph F. Mateer, Warren; Clare E. Williams, Marion; and Mr. Case and Mr. Hunt, ex-officio.

During the final luncheon on Wednesday, seven Independent telephone companies received Community Service Award plaques. These are presented yearly to those companies which are judged as having done the most outstanding job of improving public understanding of the Ohio Independent telephone industry.

Those companies receiving the 1956 award were: Ashtabula Telephone Co.; Chillicothe Telephone Co.; Continental Telephone Co.; Lorain Telephone Co.; Northern Ohio Telephone Co., Bellevue; Mansfield Telephone Co.; and Ohio Consolidated Telephone Co., Portsmouth.

As another feature of the luncheon four men from General Telephone Co. of Ohio were rewarded for their heroism with the Association's "Beyond the Call of Duty" awards. Each received an inscribed silver tray.

Those who received this award were: Lawrence Diddle, Syracuse; Bobbie Roy, Bill Spencer and Clarence Roy, Racine. All are employes of the plant department of their company in Pomeroy.

Their heroic act involved rousing a family from a burning house one morning when the four of them were enroute to work together. After the family had been removed from the house, the men called the fire department, and while waiting for it to arrive they formed their own four-man bucket brigade to fight the fire. By coincidence, all of them are members of a local volunteer fire department.

Others who received special citations for "Beyond the Call of Duty" actions in their respective communities were: Mrs. Rheba Tucker, operator, the General Telephone Co. of Ohio, Brookville; and Miss Marguerite Boyd, traffic supervisor, Lima Telephone & Telegraph Co.

At the same time the awards

Say mister... what does this T-C mean?

Buster, to you it's just some initials . . . but to the people who use 'em it means quality. You see, T-C stands for Taylor-Colquitt Company who for 30 years now have built a reputation for careful timber selection, constant improvement through research, controlled preservative treatment and higher standards of quality. Yes sir, Buster, to us this T-C means a quality pole . . . one that will give long years of trouble free service.

T-C Pressure Treated poles are distributed by
AUTOMATIC ELECTRIC SALES CORP.
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TAYLOR - COLQUITT CO.
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By Samuel Seely

THIS book gives you physical and mathematical techniques of analyzing a wide varety of electronic circuits which are important in such diverse fields as radar, television, electronic control and instrumentation, and computers. Occasional alternate methods of analysis for a given circuit are included, and varied analytical methods are employed in developing the material. The book gives examples which relate the theoretical developments with practical situations. **This complete treatment of the broad field of electronic engineering provides designers with an authoritative reference for techniques of analysis,** including special features of the many circuits examined, and the means for combining circuits of different types to achieve required operational results.

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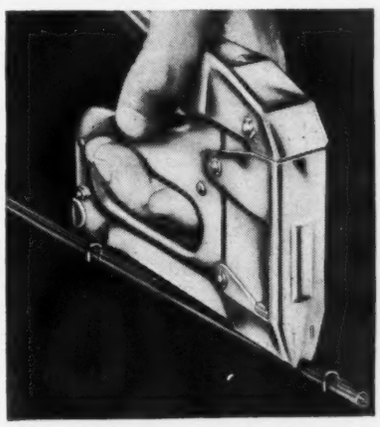

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T-25 AUTOMATIC STAPLE GUN *for wires up to 1/4" in diameter. Uses 7/16" and 9/16" round crown staples, galalloy-coated for high rust resistance. Also available in rust-proof Monel wire.*
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Can't damage wire because staples automatically stop at right height! Won't even break ¼" hollow glass tubing.

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Proved by test 6 times faster than old hammer method. Saves you 70% in fatigue and efficiency . . . saves many dollars a year.

HOLDS!
New staples get tremendous holding power from tack points that spread to lock themselves into wood!

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luncheon was being held in the Deshler Hilton Hotel, ladies who were attending the convention were guests at a special luncheon held for them at a private dining establishment.

Speaker for Wednesday's luncheon at the Deshler Hilton Hotel was Edward McFaul of Chicago who entertained the delegates with a humorous and inspirational talk on employe courtesy titled, "With Your Hat In Your Hand".

Hunsaker Elected Pres., Texas Telephone Association

DON HUNSAKER, San Angelo, vice president of the General Telephone Co., of the Southwest, is the new president of the Texas Telephone Association.

Also elected during the 51st annual convention of the Texas Association at the Baker Hotel, Dallas, were Dave Gardner, Jr., Nocona, first vice president; Marion Clay, Lufkin, second vice president; Pam Grinstead, Kerrville, treasurer, and Jack Haley, Austin, executive secretary.

Directors re-elected to the board were: W. S. Bain, Mid-Texas Telephone Co., San Antonio; Marion A. Clay, Lufkin Telephone Exchange, Lufkin; E. H. Danner, General Telephone Co. of the S. W., San Angelo; D. G. Gardner, Jr., Nocona Telephone Co., Nocona; Don Hunsaker, General Telephone Co. of the S. W., San Angelo; Ben Smith, Southwestern Bell Telephone Co., Dallas; and W. G. Winters, Hull Telephone Co., Houston, Tex.

Two new directors were chosen: H. Y. Price, Jr., San Marcos Telephone Co., San Marcos; and Claud H. Gilmer, Rocksprings & Nueces Canyon Telephone Co., Rocksprings.

Speaking to the Texas Telephone Association on the subject, "Over the Party Line," is the Honorable JOHN BEN SHEPHERD, Attorney General for Texas. F. E. HIGHTOWER, General Telephone Co. of the Southwest, San Angelo, is seated beside Shepherd.

The attendance was the largest in the history of the Texas Telephone Association and probably the outstanding features were the speech by the Honorable John Ben Shepperd, attorney general of Texas, and the panel on Finance in which the following took part: R. F. Hardy, assistant treasurer, Chase Manhattan Bank, New York City, Phil Lucier, vice president, Stromberg-Carlson Credit Corp., Rochester, N. Y., Sterling Bass, treasurer, Kellogg Switchboard & Supply Co., Chicago, Ill., and Everett Weitzell, chief, Loans Division, REA, Washington, D. C.

Merle Hale, President of the USITA gave a resume of the activities of the National Association with respect to national legislation and other matters of interest.

Mr. Hale gave particular emphasis to the work, both by USITA and by state associations, in connection with the retention of the 750 station exemption in the wage-hour legislation, and the inclusion of a reimbursement provision in federal highway legislation.

Mr. Hale also announced the appointment of new committee known as the Merchandising Committee. He pointed out that most of the Bell com-

Pictured above are the officers and directors of the Texas Telephone Association. Front row (l. to r.) are: J. B. HALEY, executive secretary, Austin; D. G. GARDNER, JR., first vice pres., Nocona Telephone Co.; DON HUNSAKER, pres., General Telephone Co. of the Southwest, San Angelo; MARION A. CLAY, second vice pres, Lufkin Telephone Exchange; W. G. Winters, out-going pres., Hull Telephone Co., Houston.

Middle row (l. to r.) are: A. L. ROBB, Electra Telephone Co.; D. H. COMPARETTE, JR., Kerrville Telephone Co.; CLIFF R. DOWD, Hawkins Telephone Co.; OSCAR BURTON, Gulf States Telephone Co., Tyler; H. Y. PRICE, San Marcos Telephone Co.; D. T. STRICKLAND, Southwestern States Telephone Co., Dimmitt.

Back row (l. to r.) are: CHARLES HENDRIX, Brazoria Telephone Co., Brazoria; E. H. DANNER, General Telephone Co., of the Southwest, San Angelo; GUY SMELSER, Northeast Telephone Co. Bogata; J. T. CHAMBERS, Tenaha Telephone Exchange; W. S. BAIN, Mid-Texas Telephone Co., San Antonio; LUCIAN W. SPENCER, North Plains Telephone Co., Dumas; MORRIS S. BURTON, Gulf States Telephone Co., Tyler; W. G. WRIGHT, General Telephone Co. of the Southwest, San Angelo; FABIAN BEARDEN, Home Telephone & Electric Co., Baird. Not pictured is BEN SMITH, Southwestern Bell Telephone Co. Dallas.

panies and many Independent companies have started merchandising programs, and that it will be the function of this committee to provide merchandising ideas and other stimulation to member companies in connection with their employe sales activities.

The *Plant Workshop* was under the direct supervision of the Plant Committee composed of Paul E. Blakely, equipment supervisor, Texas Telephone Co., Sherman; M. E. Barnes, Plant superintendent, Southwestern States Telephone Co., Brownwood; G. A. Dyer, plant engineer, Southwestern Bell Telephone Co., Dallas; Donald Lamb, plant supervisor, Gulf States Telephone Co., Tyler; G. T. Sims, general plant supervisor, General Telephone Co., of the Southwest, San Angelo.

The first subject was "Rural Line Carriers" and this was divided into several parts showing the need for such carriers, the economic considerations and general line layout. This was handled in person by C. N. Roberts, engineer of the General Telephone Co., of the Southwest.

The second item in the Plant Workshop was "Pole Climbing" presented on film by L. S. Orth, area installation supervisor of the Southwestern Bell Telephone Co., Dallas, under the general supervision of G. A. Dyer, a member of the committee. This feature of the program used a display of climbers and other incidentals including a book of system practices on line climbers used by the Southwestern Bell.

The *Commercial Workshop* has been a popular subject for three years but this year was the most popular of all Texas convention features. E. H. Utzman, Southwestern States Telephone Co., Brownwood; W. H. Thomson, General Telephone Co., of the S. W., San Angelo; Rolla Johnson, Gulf States Telephone Co., Tyler; L. B. Dunlap, Southwestern Bell Telephone Co., Dallas; Francis G. Winters, Texas Telephone & Telegraph Co., Houston, made up the committee and by serious preparation in advance they developed a successful and interesting meeting.

The first phase was a demonstration of "Service Order Forms" consisting, of installations, moves, change of address change of business, etc.

In the absence of L. B. Dunlap of the Southwestern Bell, the next subject "Package Selling" was handled by Mr. Scott and Miss Moss of Mr. Dunlap's staff. This package selling developed ideas concerning the need for all types of subscribers that would be interested in extending any class of service. This particular section proved conclusively that the new ideas developed by the various manufacturers made an attractive selling plan.

Mr. Johnson of the Gulf States company, gave a visual demonstration of great interest to the audience covering the effects on the industry by the reduction of the present 750 station exemption.

Mr. Winters of Texas Telephone & Telegraph, gave a paper on the importance of Public Relations.

The *Traffic Workshop* was the result of several months cooperation of the committee consisting of Hiram Jones, Gulf States Telephone Co., Tyler; N. T. Dunlap, Southwestern Bell Telephone Co., Dallas; C. A. Martin, General Telephone Co. of the S. W., San Angelo; F. K. Shock, Texas Telephone Co., Sherman and John P. Smith, Southwestern States Telephone Co., Brownwood.

C. A. Martin presented a paper on "What Does Your Boss Expect of You?" Mrs. Hildred Anderson, staff assistant, Southwestern Bell Tele-

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phone Co., discussed "$aving $witchboard $econds"; Mrs. Evelyn McDaniel, general traffic instructor, General Telephone Co., San Angelo, "Hiring Your 1956 Chief Operator"; Mrs. Hazel Holley, chief operator, Palestine Telephone Co., Palestine, on "Aircraft Flash." This particular workshop drew about 125 people.

K. L. Lawson Heads Nebraska Tel. Assoc.

IN SPITE of heavy snows which blanketed the western half of the state over 300 Nebraska telephone men and women attended the 56th annual convention of the Nebraska Telephone Association at the Paxton Hotel in Omaha.

Following the invocation, J. B. Moore, vice president and general manager, Nebraska Area, Northwestern Bell Telephone Co., Omaha, welcomed the delegates to the convention and to Omaha.

A panel discussion on the subject of "Financing Plant Improvements" proved to be most popular. Panel members described the type and source of financing used by their companies, related their experiences with financing, and offered helpful suggestions.

"Finance for Small Companys" is topic for a panel discussion at the Texas Telephone Association Convention. Pictured above are the participants in the panel. Left to right, are: R. F. HARDY, Chase-Manhattan Bank, New York City; E. C. WEITZELL, Rural Electrification Administration, Washington, D. C.; JAMES C. WINTERS, Moderator for the panel, Texas Telephone and Telegraph Co., Houston; STERLING BASS, Kellogg Switchboard & Supply Co., Chicago; W. G. WINTERS, president of the Association, Hull Telephone Co., Houston; and PHIL LUCIER, Stromberg-Carlson Credit Corp., Rochester, N. Y.

Pictured at the ladies' luncheon at the Texas Telephone Association Convention are, from left to right: MRS. W. G. WINTERS, Houston; MRS. J. C. WINTERS, Houston; MRS. J. C. PAXTON, Dallas; MRS. RAY F. RED, San Angelo; MRS. MILLS ROBERTS, Memphis (Texas); MRS. OSCAR BURTON, Tyler; MRS. DON HUNSAKER, San Angelo; MRS. FRANK WITTEN, Dallas; and MRS. HOWARD HOWSLEY, Dallas.

Objective of the discussion was to bring out the varying types and sources of financing available for small telephone companies. Panel members were: James L. Morrison, Lincoln, moderator; J. A. Bonebright, State Railway Commission, Lincoln; Clell D. Elwood, Hay Springs: A. F. Johnson, Funk; John Kaldenberg, Burwell; D. E. McGregor, Gibbon; Wm. L. Perrett, Hyannis; and Wm. Sandman, Diller.

C. V. Price, chief, Division of Nebraska Resources, Lincoln, delivered the morning address on the subject of Nebraska's success in attracting industry. Mr. Price described the activities of his department and related how electronic equipment manufacturers have displayed a special interest in Nebraska because of the high quality and dependability of manpower available.

Mr. Price also called attention to Nebraska's highly favorable tax structure and urged delegates to review local community atmosphere in terms of attractiveness to industry.

President Pat J. Carey, in his an-

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nual report, reviewed the highlights of association activities during 1955 and urged members to be diligent in their contacts with Congressmen on minimum wage and highway relocation cost legislation.

An "Electrical Power Demonstration Related To Safety" was provided through the courtesy of Northwestern Bell Telephone Co. The highly effective demonstration proved that joint use of poles is safe if proper safeguards and clearances are maintained at all times. A power panel and miniature joint use line was used to demonstrate how accidents can and do happen when clearances and proper safety standards are not maintained.

The annual banquet was preceeded by a Hospitality Hour provided through the courtesy of telephone equipment manufacturers, suppliers, and service firms. At the annual banquet President Carey presented retiring board member Otto Fuerst, Scottsbluff, with a plaque in testimony for his over 50 years of service to the telephone industry.

An attractive merchandising display was provided by the Northwestern Bell Telephone Company and an operator's conference was held on the last day of the convention.

Nebraska Railway Commissioner Paul E. Pettygrove told the convention that "Paramount in any concept of regulation is the requirement that the rates which the public must pay for service are fair and reasonable."

"These rates," he said, "must be designed to yield the company no more than a fair and reasonable return. As all of you know, one of the most difficult and ticklish problems facing regulatory commissions is the appraisal of all of the many factors affecting this problem and the determination of rate levels which meet the tests which we have been discussing. The public, also, expects and is entitled to a service which is reliable, accurate, adequate and as free from interruptions as good management can reasonably provide."

Mr. Pettygrove emphasized that an important function of the commission is to make sure that the service provided the public is acceptable and up to good service standards.

"From my observations," he said, "most dissatisfaction among telephone customers, to whatever extent it may exist in specific localities, stems from

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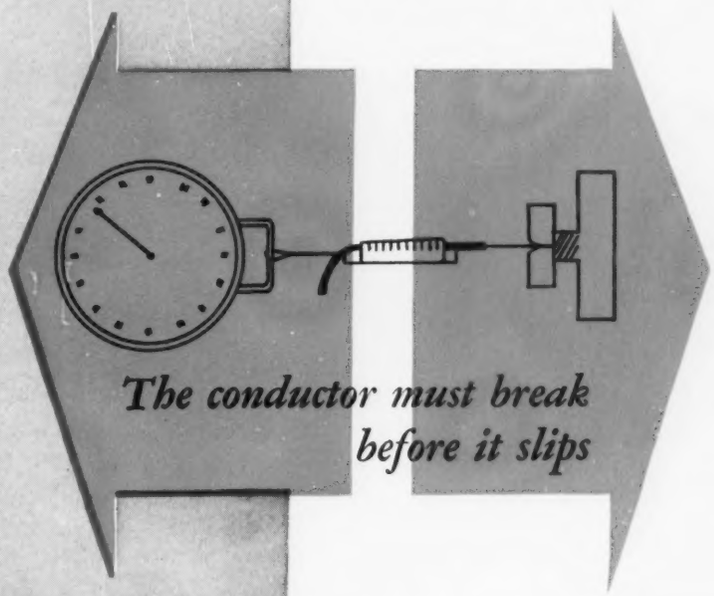
P clamp adhesion test



The conductor must break before it slips

P clamps are the most widely used method of attaching drop wire to buildings. Lest you may worry about a P clamp causing slipping of the insulation or jacket on Alphaduct Neoprene Jacketed Drop Wire — read about this Alphaduct service test. This test is made daily.

A sample of Alphaduct wire is inserted in a P clamp with 12 inches of the wire projecting from the top of the clamp. The bail of the clamp is then inserted in the upper jaws of a tensile testing machine, and the end of the wire is stripped free of jacket and insulation and inserted in the other end of the machine.

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deficiencies in the service. I think this points up the importance of your carefully measuring the quality of your service. Talk it over with your customers at every opportunity and make sure that you are meeting their needs satisfactorily. A healthy service situation will contribute importantly to public understanding of your rate and earning problems, I am sure."

Mr. Pettygrove stressed that another important consideration from a telephone operating standpoint, as well as from the point of view of both the public and the commission, is the ability to meet the public's demands for new and additional services.

"To serve adequately," he said, "any telephone company must not only provide good service but must be able to provide the additional facilities required to serve new customers and to meet the expanding requirements of existing customers. No doubt this requires attention to advance planning and anticipating major needs before they develop. In addition, we are fully aware of the financial considerations involved and the necessity of your possessing the financial ability to raise the money required to support plant expenditures as they become necessary."

Stating that one additional requirement which the public and the commission can reasonably expect from a public service company is that it be operated efficiently and economically, Mr. Pettygrove reminded his audience that it is the "responsibility of the commission to scrutinize expenses carefully and allow only those which meet reasonable standards of efficiency in any proceedings which come before the commission."

Nebraska Convention registration desk was busy spot on April 3 as Nebraska Independents registered for their annual convention.

"I should think," he said, "that this obligation would carry with it the necessity to introduce more efficient types of operation such as dial replacing manual service when it becomes apparent that substantial savings are obtainable.

Discussing protection of the company's ability to serve adequately, Mr. Pettygrove said, "This doesn't mean that anyone is guaranteed any specific level of return from its operations."

"In my opinion," he said, "it would involve setting of rates on a realistic basis and affording the company a reasonable opportunity to realize a fair return provided it operated in an efficient and prudent manner. Any rate of return to be adequate should not only cover any interest and dividend requirements which have to be met currently but provide a reasonable margin in earnings to assure the long-range financial integrity of the company. We recognize that there will always be ups and down in levels of business activity and that some amounts should be set aside in active business periods to help tide us over when conditions become less favorable.

"I know this becomes an important consideration when you start negotiations to borrow money, sell bonds or issue stock to finance necessary expansion activities. Investors are interested in the security of their funds as well as income and may well be reluctant to invest without reasonable long range safety of their money. A good financial reputation will not only assure the ability to raise money but will be a factor in keeping its costs down. The commission is fully aware that inability to raise money and meet customer demands for service would only result in customer dissatisfaction. From this angle it is important to the public as well as to the companies that the financial po-

Members of this Nebraska Convention group are (l to r): MRS. & MR. RUPURT SCOTT, Holstein; LeROY SIECKMEYER, Shumway Bird Co., Lincoln; and MR. & MRS. GERALD STREFF, Roseland.

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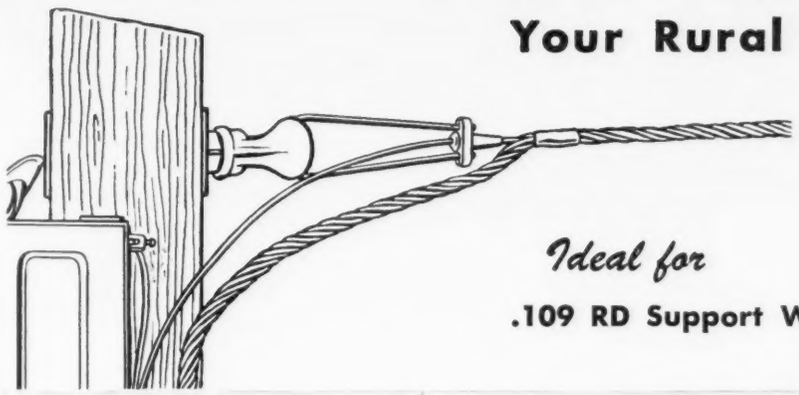

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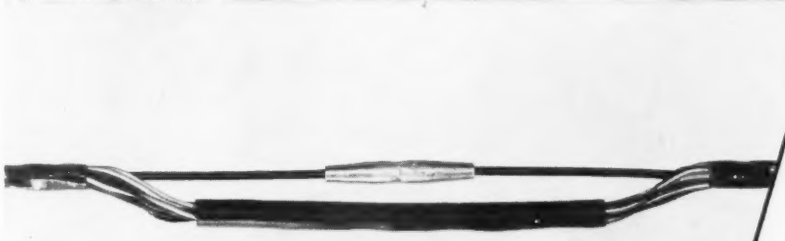

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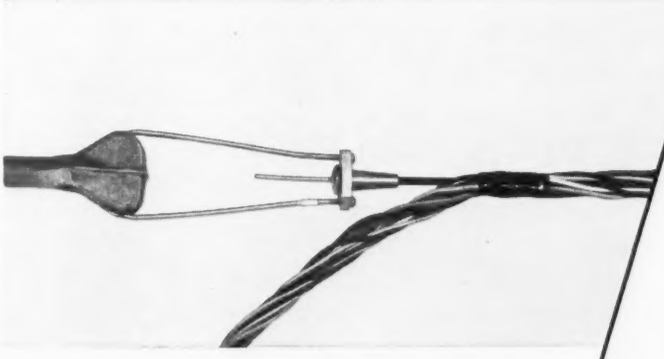

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Push wire through self-locking Wirevise until desired tension is obtained and trim—no bolts to tighten—no clamps to set—no special tools required—simplifies sagging.

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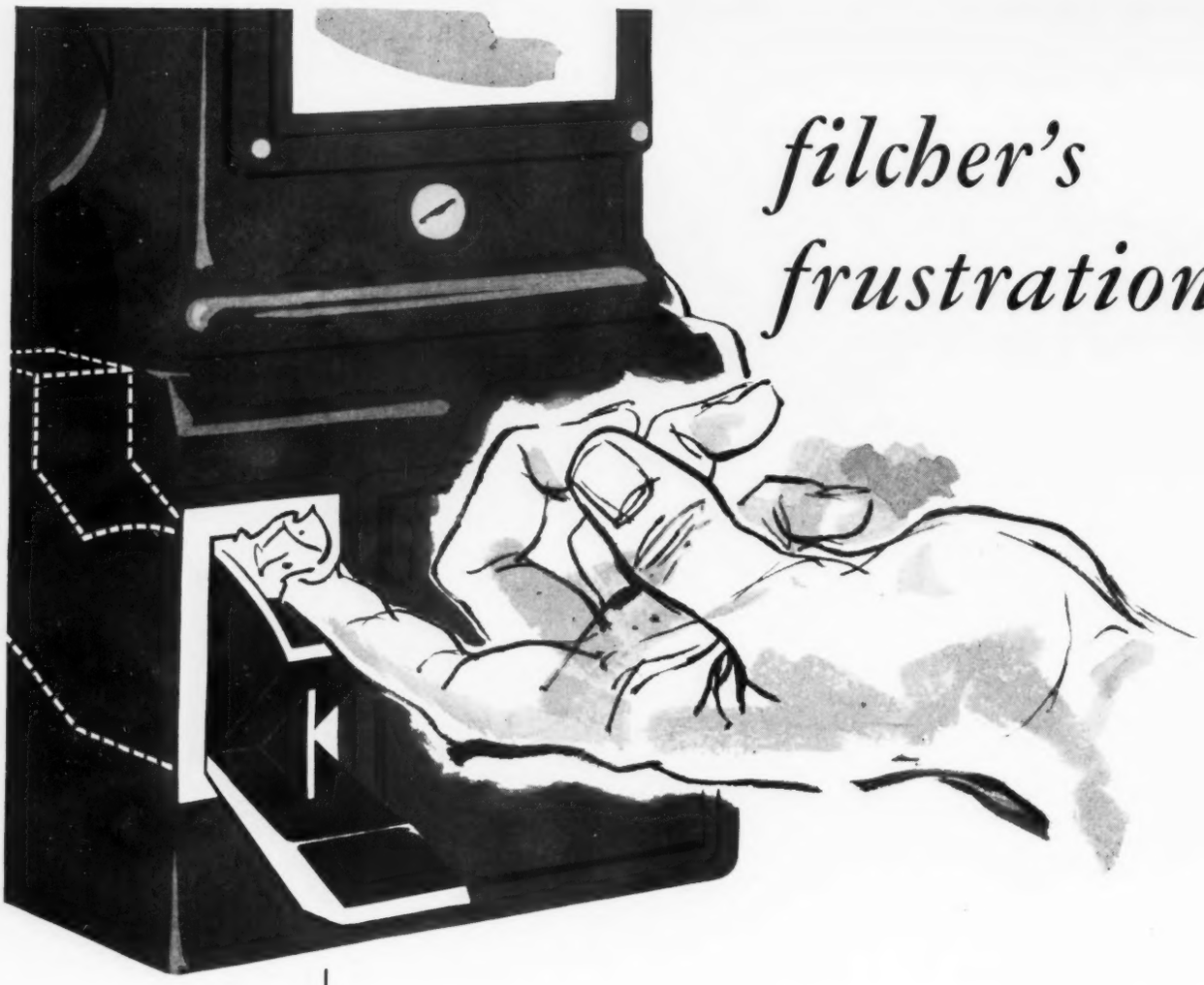

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(Continued from page 90)

positions of the companies be sound."

Convention delegates received a report on the status of farm income and farm legislation from Charles Marshall, president, Nebraska Farm Bureau Federation, Avoca. Mr. Marshall stated that the present slump in farm income occasioned by huge surpluses can best be solved by the development of new markets and uses for farm products. He cautioned against so called cure-all legislation designed to increase farm income at the expense of even more controls and regulations. Mr. Marshall illustrated his address with examples of mis-management in the handling of surpluses, and acreage allotments.

The convention adopted resolutions urging Congress to preserve the present switchboard operator exemption in the Minimum Wage law and called upon Congress to provide funds for reimbursement of non-betterment relocation costs made necessary by federally-aided highway projects. A memorial in respect of the memory of the late Vernon F. Bellows was adopted. Mr. Bellows was association president at the time of his death last fall.

The convention elected the following new directors: Vernon Allan, Scottsbluff; Robert C. Hunt, Blair; and G. L. Jorgenson, Indianola.

The convention closed with the annual Pioneer Luncheon jointly sponsored by the Casper E. Yost Chapter, Telephone Pioneers of America, and the Frank H. Woods Chapter, Independent Telephone Pioneers of America.

The Association board of directors elected the following officers for 1956: K. L. Lawson, president; Wm. T. Autry, vice-president; and James L. Morrison, secretary-treasurer.

Kentucky Independents Name S. S. Long President

Meeting at the Phoenix Hotel, Lexington, members of the Kentucky Independent Telephone Association named S. S. Long president of the organization.

Other officers elected were: D. B. Corman, Augusta, vice president; G. B. Foscue, Jr., Florence, vice president; and J. A. Reitze, Elizabethtown, secretary-treasurer.

Directors of the Kentucky association are: Mr. Corman; Mr. A. L.

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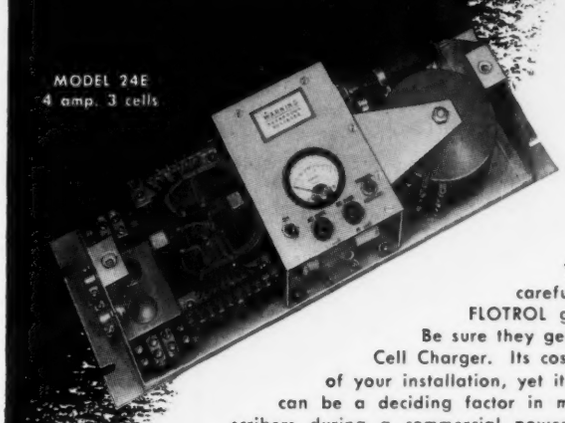

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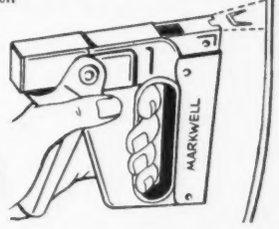

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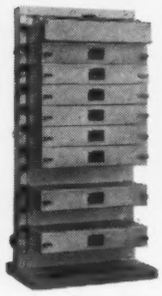

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Directors of Kentucky Telephone Assoc. (l. to r.): H. J. WRIGHT; M. B. SHEPHERD; G. B. FOSCUE, Jr.; J. W. WIBBELER; D. B. CORMAN; J. A. REITZE; S. S. LONG; A. L. DAUGHTERS; P. H. McCRORY.

Daughters, Cincinnati, Ohio; Mr. Foscue; Mr. Long; Mr. P. H. McCrory, Louisville; Mr. W. L. Parr, Mayfield; Mr. M. B. Shepherd, Lexington; Mr. J. F. Wibbeler, Ashland and Mr. H. J. Wright, Elizabethtown.

During the course of the convention the membership adopted a new constitution whereby the association's name has been changed from Kentucky Independent Telephone Association. This change was made because of the predominance of the General Telephone Co. following the integration of the General company's and Gary company's property in Kentucky. Following the adoption of the Constitution, the Southern Bell Telephone & Telegraph Co. and the Citizens Telephone Co., a subsidiary company of the Cincinnati Suburban & Bell Telephone Co. were accepted as members in the association.

Speakers at the one day meeting included: D. H. Lloyd, Lexington; Colonel Wm. C. Henry, Bellevue, Ohio; James B. Roberts, Frankfort; James B. Gordon, Chairman of the Kentucky Public Service Commission; Miss Ann L. Soper, Louisville, and E. C. Weitzell, Chief of REA's Telephone Operations & Loan Division, Washington, D. C.

Gulf States' Drivers Receive TSA Safety Award For 3d Time

SIXTY regular drivers of Fleet units of the Gulf States Telephone Co., Tyler, Texas, during the year 1955 drove telephone company cars and trucks a total of 454,539 miles with only three minor accidents, resulting in property damage amounting to less than $100.00 and without suffering any injury to the driver or passengers in the vehicles. That record won the Texas Safety Association 1955 Industrial Fleet Safety Contest for the Gulf States Telephone Co. in Group III which included Communication Fleets in Local operations.

This is the third award for first place received by the Gulf States

Kentucky Telephone Assoc. officers (l. to r.): G. B. FOSCUE, Jr., vice pres.; D. B. CORMAN, vice pres.; S. S. LONG, pres., and J. A. REITZE, sec.-treas.

Drivers in three consecutive years. In 1953, a total of 352,012 miles were driven with three minor accidents and in 1954 a total of 399,702 miles were driven with only three minor accidents and without any injury to the driver or passengers. For the three years only nine accidents with no injuries have occurred in well over a million miles of driving.

Presentation of the award was made at the 17th Annual Texas Safety Conference held at Dallas, Texas on March 26-27.

Bell System Museum To Open At Baddeck, N. S., Aug. 18

THE Alexander Graham Bell Museum at Baddeck, Nova Scotia, is to be opened formally on the afternoon of August 18th. It has been established by Canada's Department of Northern Affairs and National Resources, Ottawa, to honor Dr. Bell's scientific achievements.

The Museum's architectural motif is the tetrahedon, the four-sided pyramidal cell which the inventor designed for experimental kites strong enough to carry a man aloft. It is located on a height overlooking the Bras d'Or Lakes, near the summer home where Bell lived between 1893 and 1922. While at Baddeck, Bell and four associates formed the Aerial Experiment Association, which contributed greatly to aviation advancement.

The principal address at the museum's opening ceremonies will come from the Hon. Jean Lesage, Minister of Northern Affairs and National Resources. It is expected that Hon. Robert H. Winters, Minister of Public Works, will preside, and that Premier Henry D. Hicks of Nova Scotia will attend.

Also present will be Mrs. David Fairchild and Mrs. Gilbert Grosvenor, daughters of the late inventor, who donated most of the scientific relics and records that will be on display. Both their parents are buried on a hilltop near their former summer home atop Beinn Breagh.

First All Electronic Dial Switchboard Completed By Stromberg-Carlson

A TRANSISTORIZED all-electronic dial telephone switchboard which uses no vacuum tubes or mechanical stepping switches has been completed by Stromberg-Carlson, a division of General Dynamics Corp., and delivered to the Bureau of Ships of the U. S. Navy.

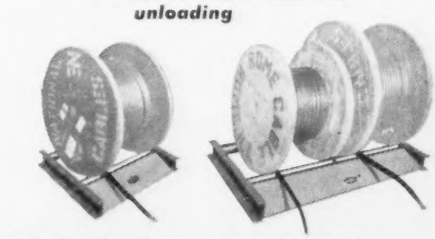
In this switchboard all line finding, circuit switching, tone signal generating, and, in fact, virtually all functions found in conventional dial switching systems, are performed by transistors or diodes. This is the first such complete transistorized switchboard publicly announced in this country.

A transistor is a tiny crystal of germanium, silicon, or other semiconducting material. Like a vacuum tube, it is capable of amplifying electronic signals, and it also can conduct electrical impulses, or block them, depending on the electric potential placed upon it. This property can be changed or alternated millions of times per second. A diode is a similar device using the same materials, but serving as a one-directional conductor. That is, it will conduct electricity in one direction, but not in the other. Unlike a vacuum tube, a transistor or diode has no heating element, and requires very little power. The Stromberg-Carlson electronic switchboard employs hundreds of transistors and diodes, all of the germanium junction type.

Work on electronic switching systems was initiated by Stromberg-Carlson more than eight years ago, shortly after the conclusion of World War II. In the early years of this research program, prior to development of the transistor, all switching was accomplished by combinations of conventional vacuum tubes, special gas tubes, and electro-mechanical devices. Systems incorporating such devices were large, heavy, consumed a great deal of power, and dissipated large amounts of heat.

However, circuits that were worked out for such electronic systems were readily adaptable to use with transistors when those devices became available, and Stromberg-Carlson was in an exceptionally favorable position to incorporate transistors into its experimental electronic switching systems.

At this stage the Stromberg-Carl-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son development was shown to various military agencies, and as a result the Bureau of Ships' interest in the work culminated in a developmental contract for a 100-line switchboard.

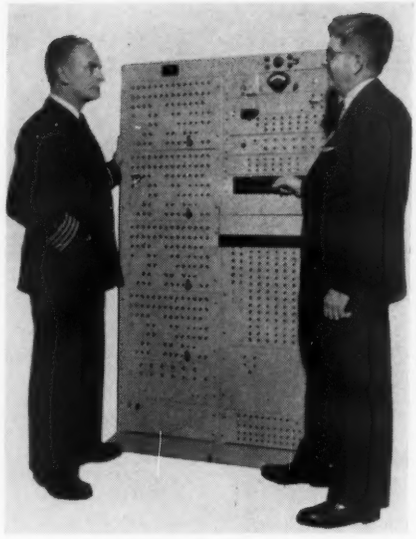
The first phase of the project was under the direction of Frank A. Morris, manager of Wire Communications, Research Department, and the design of the first model switchboard was completed under the supervision of Robert Trousdale, now in charge of Transistorized Communication Switching Systems in the Research Department. George Elliott, senior professional engineer of the Telephone Engineering Department, contributed much toward making the transistorized switchboard compatible with existing telephone systems.

Work has been in progress at Stromberg-Carlson for many months on a prototype 100-line, 15-link electronic switching system for a shipboard installation for the U. S. Navy. This development is under the direction of John Garner, who has a large team of telephone engineers working with him. This 100-line system will require approximately 4,500 transistors and 5,000 diodes.

The transistorized switchboard provides a number of significant advantages over the electro-mechanical switching systems now in general use. It is compact, and light weight, requiring less than half as much space as existing models. It weighs about one-quarter as much as a typical electro-mechanical dial system. These factors are especially important in shipboard installations, where space and weight must be kept to a minimum.

Since the switching is done electronically, the absence of moving parts eliminates problems caused by dust, wear, corrosion and other similar factors which effect electro-mechanical systems. If desired, transistorized switching systems can be completely sealed, or component sub-assemblies can be sealed in plug-in units.

Furthermore, transistors are exceptionally rugged, and can be subjected to severe shock without sustaining damage. In addition, the life of a transistor is theoretically infinite, as compared with vacuum tubes, which have definite life limitations. Thus the transistorized switching system is expected to be virtually maintenance-free. Because of this, and the compactness of the assembly, the equipment can be mounted against a well or a ship's bulkhead whereas a conventional electro-mechanical system requires space on all sides for ready access for servicing.



CAPTAIN A. B. JONES, JR., director —Material Laboratory, New York Naval Shipyard, and JOHN H. VOSS, vice president of Stromberg-Carlson, a division of General Dynamics Corp., inspect the first complete transistorized switchboard publicly announced in this country. This transistorized switchboard was developed by Stromberg-Carlson and recently delivered to the Bureau of Ships of the U. S. Navy.

Transistors generate practically no heat, and can operate at elevated temperatures—130°F or above. At lower temperatures efficiency of transistors actually increases, so cold weather or Arctic conditions will not effect operation of a transistorized dial telephone system.

Anaconda Wire & Cable Expands Cable Facilities

THE ANACONDA Wire & Cable Co. announced last month that extensive equipment is now being installed for the production of paper-insulated, lead-covered telephone cable. It is anticipated that these new facilities will be in production during the second half of this year.

These facilities, together with expansion in the Plastic Telephone Cable Division, will round out a complete service to users of these types of products.

The services of personnel with long experience in the communication field have been obtained for this program. Additions have been made in staff and field engineering, and Research and Development Departments.

SUBSCRIBER LINE CARRIER

(Concluded From Page 52)

quirements, up to six channels of carrier can be removed economically and reused elsewhere.

The new lines of this project are to be transposed to an R-2 scheme and the two carrier systems will have staggered frequency allocations. In most applications, an R-1 or R-2 transposition scheme will meet transmission and crosstalk requirements. However, the manufacturer's specifications and recommendations should be consulted before a final decision is made in this regard. Attenuation and crosstalk measurements should be made at carrier frequencies wherever possible, especially if it is planned to place more than two carrier systems on the same lead or in the same entrance cable.

The subscriber line carriers currently manufactured have a usable gain of at least 35 db, and practically all signaling requirements can be provided — bridged, divided, superimposed, E and M and ringdown. A full line of special filters, accessory panels, weatherproof cabinets, impedance matching devices, emergency power supplies, and other accessories are also available. The manufacturers have excellent publications available on request describing the application, installation and maintenance of their particular carriers, and it is recommended that anyone planning an installation of subscriber line carrier obtain these publications.

The E and M signaling and ringdown modifications of the subscriber line carrier should not be overlooked as they offer economies in providing extended area service trunks, foreign exchange trunks, special service circuits, and in some instances, short haul toll trunks.

Although the subscriber line carrier is not the complete answer to the rural problem, it is definitely a step in that direction. Its flexibility, compatibility with other telephone plant, competitive, reliability and ease of maintenance all prove that the subscriber line carrier has a place in the telephone plant and its use should not be ignored.—*Adapted from a paper presented at the* 1955 *convention of the Texas Telephone Association*

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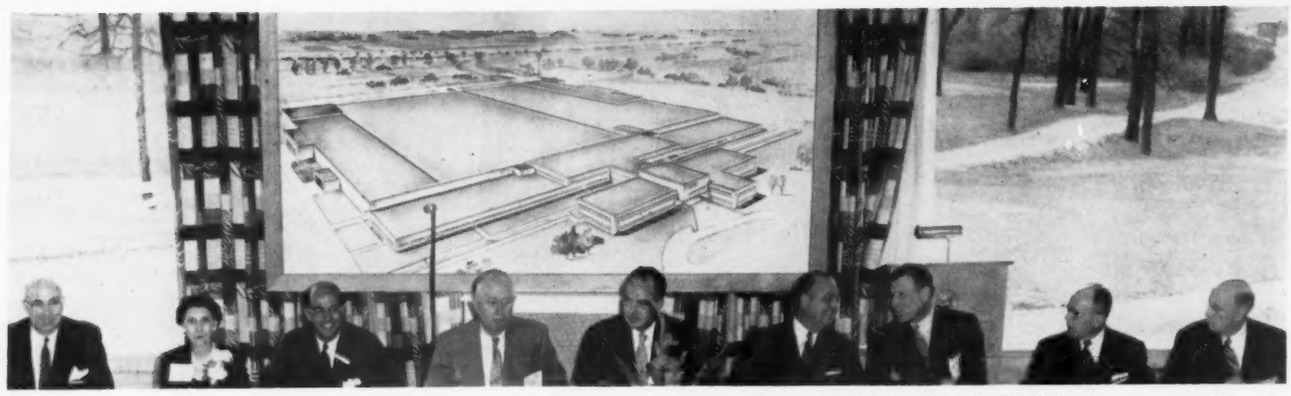


Luncheon at Elmhurst Country Club for about 150 Chicago and suburban civic and community leaders, followed ground-breaking for Automatic Electric's new plant. From left to right: H. F. LELLO, executive vice president, Automatic Electric; MRS. HATTIE OGRINC, president, Northlake Chamber of Commerce; THEODORE S. GARY, vice president, General Telephone Corp.; J. G. GRIFFIN, Mayor of Northlake; LESLIE H. WARNER, Automatic Electric president; DONALD C. POWER, president, General Telephone Corp.; THOMAS H. COULTER, chief executive officer, Chicago Association of Commerce and Industry; C. S. CADWELL, president, International Automatic Electric Corp.; and G. A. BRYANT, president, The Austin Company, which is constructing the new plant.

Automatic Electric Breaks Ground For Multi-Million Dollar Factory

AUTOMATIC ELECTRIC CO. has begun a multi-million dollar expansion program that will give it one of America's most modern industrial facilities.

The expansion got under way recently when Donald C. Power, president, General Telephone Corp., and Leslie H. Warner, Automatic Electric's president, headed a ground-breaking party of Chicago and suburban business executives who maneuvered huge earthmovers over sections of the 167 acre site of the company's new 1,300,000 square foot headquarters plant at Northlake in suburban Chicago to signal start of the new construction project.

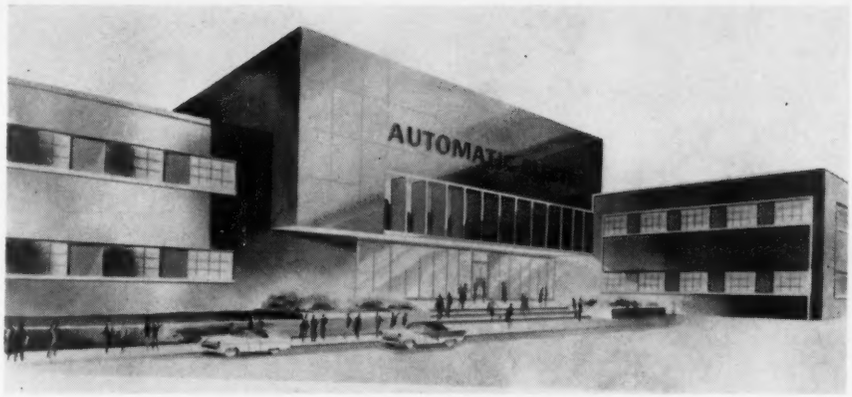
Thomas H. Coulter, chief executive officer, Chicago Association of Commerce and Industry; Mayor Joseph C. Griffin of Northlake, who is also treasurer and director, International Register Co., Chicago; Mrs. Hattie Ogrinc, president, Northlake Chamber of Commerce; and George A. Bryant, president of The Austin Co., national engineering firm which is handling design and construction of the new plant, completed the ground-breaking team which launched a full scale "assault" on the former Westward-Ho golf course, to which activities now housed by Automatic in 15 separate buildings on Chicago's near west side will be transferred late in 1957. Operations now being conducted on some 65 floors will be combined in a compact, single-story manufacturing layout at the new plant which will also include a large two-story office building, and research and development laboratories.

In a talk delivered at a luncheon at the Elmhurst Country Club for 150 civic and business leaders from the Chicago area immediately following the ground-breaking ceremonies, President Power of General Telephone emphasized his faith in the future of the Independent telephone industry by stating that General's expansion budget this year, for its telephone operating companies alone, is in excess of $133 million, which represents more than $500 thousand for every working day.

Citing General Telephone growth in many areas of the United States as basis for his confidence, Mr. Power went on to say that his optimism was not limited to the United States alone.

In addition to the continued expansion of American industry, as well as population increase, Mr. Power asked his audience to keep in mind that the possibilities of industrial expansion overseas could result in further demand for communication facilities, and foresaw increased opportunity (from a manufacturing standpoint) for the development and

Highlights of traditional ground-breaking ceremony for Automatic Electric's new plant in Northlake, in the suburban Chicago area, was the use of giant bulldozers to turn the first earth. From left to right: GEORGE A. BRYANT, president, The Austin Co.; MRS. HATTIE OGRING, president, Northlake Chamber of Commerce; LESLIE H. WARNER, president Automatic Electric Co.; DONALD C. POWER, president, General Telephone Corp.; JOSEPH C. GRIFFIN, Mayor, City of Northlake; and THOMAS H. COULTER, Chicago Association of Commerce and Industry.



Artist drawing of the new Automatic Electric factory under construction at Northlake, Ill.

supply of telephone equipment that would go hand-in-hand with such expansion.

Mr. Power also pointed out that one of the reasons General is happy to build this new Automatic Electric plant in Chicago is that Chicago is the major center of the telephone manufacturing industry in the United States, and he noted that it would enable Automatic Electric to better serve the Independent telephone industry. "The plant we are erecting," he said, "is the best and most efficient that the engineering mind of man can create."

The new Automatic Electric plant will be of modern, functional design with a structural steel frame in the one-story manufacturing areas, will have incombustible roofing, wide column spacing, high intensity illumination and a plant wide network of overhead materials handling equipment. The two-story portion of the building will be of the waffle-type, lift-slab construction. All exterior walls will be light gray face brick with limestone trim, aluminum windows, and a central general office entrance of granite, aluminum and plate glass.

To eliminate back-tracking and cross flow of traffic, in keeping with the objectives of straight-line production, materials will be received and stored at the north end of the plant and moved through machinery and fabricating sections to a centrally located stockroom. Parts in process will then be conveyed to subassembly and assembly departments and finally to the shipping areas at the south end of the plant. Future expansion of the manufacturing facilities will be to the west.

In addition to providing dial telephone and other equipment to the Independent telephone industry that serves approximately two-thirds of the geographic area of this country, Automatic Electric produces telephone type relays, switches and other devices that are used in electrical control and the automation of machines and processes. The company was established in 1891, and is the originator of the dial system of telephony.

President Leslie H. Warner of Automatic Electric presided as toastmaster and introduced the various guests and other speakers.

Kellogg Receives $11,000,000 Signal Corps Equipment Order

THE Kellogg Switchboard & Supply Co., Chicago, a division of International Telephone — Telegraph Corp., has received orders from the U. S. Army Signal Corps for equipment valued at $11,000,000, according to a recent announcement from the IT&T Co. Included are large quantities of field telephones, telephone carrier terminals, and field telephone repeaters, all of the latest approved design.

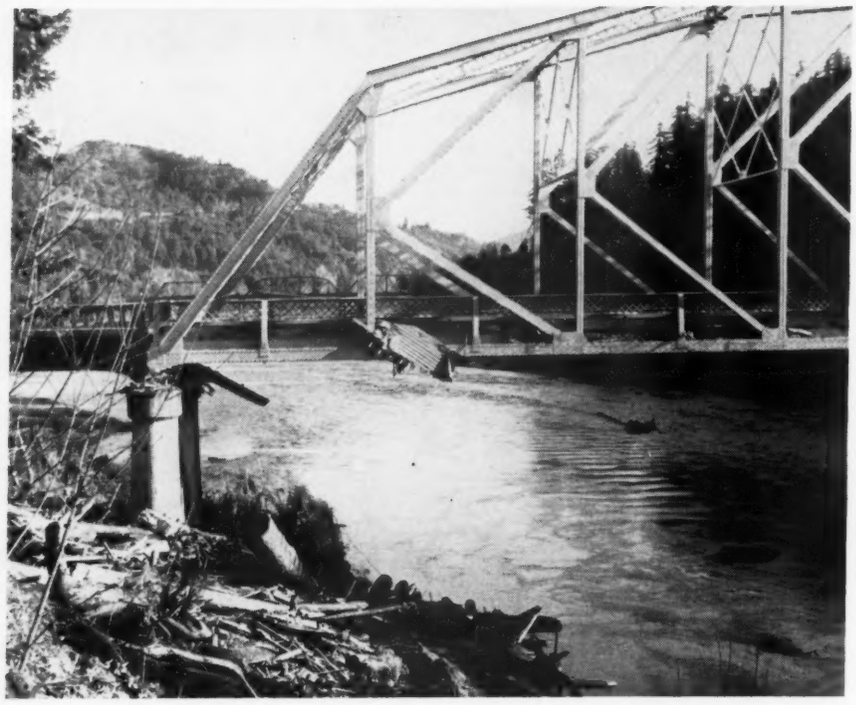
James H. Kellogg, president of the Kellogg division, stated that production of these items will be at Kellogg's two Chicago plants and is to be spread out over a period that extends through 1957, insuring a consistently steady supply to meet Army needs.

This is the first volume production by any manufacturer of the improved field telephone, model TA-312. This telephone is a radical departure from the familiar canvas-covered model EE-8 which so many veterans of World War II will remember. The new model is explosion and water resistant, has improvements which reduce the demand for replacement batteries and provides reception and transmission equal to the latest types of telephones used in the home.

The telephone terminals, models AN/TCC-3 and AN/TCC-7, will handle four and 12 carrier channels, respectively. The telephone repeaters, model AN/TCC-11, are unattended carrier repeaters used to extend the range of 12-channel carrier systems.

Designed for military reliability, they represent the Signal Corps' policy of incorporating the latest technical developments in telephony to insure dependability and ruggedness of its field equipment.

Signal Corps officers and officials of the Kellogg Switchboard & Supply Co., inspecting Signal Corps field telephone sets similar to TA-312, which Kellogg will manufacture and which replaces EE-8 military telephones. Left to right: C. D. MANNING, vice president, Kellogg Switchboard & Supply Co., Colonel ARVO NIEMI, Signal Corps; J. H. KELLOGG, president of Kellogg; Captain FRANK BOYER, Signal Corps; T. P. LEDDY, assistant vice president of Kellogg.



Microwave Proves Reliability

By L. GRAY BECK
Chief Engineer,
West Coast Telephone Company.

MICROWAVE radio, often referred to as a "weatherproof toll line," again has proved itself to be exactly that. The devastating wind and flood conditions in the Southwestern Oregon and Northern California area early this year pointed out the importance of our microwave systems. Were it not for these systems, this area would have been without communications.

Most telephone people have read or heard about the advantages of microwave in adverse weather conditions, but it's difficult to realize how really valuable microwave can be until you face a crisis such as we did.

We have three Type 72 microwave systems in Southwestern Oregon and Northern California, as shown on the map in *Figure* 1. One system provides toll message circuits between Coos Bay and Eugene, Oregon. Another system provides communications between Coos Bay and an Air Force base located at Hauser, Oregon. The third system provides toll message circuits between Crescent City and Eureka, California, and also serves an Air Force base located at Klamath, California. The Coos Bay-Eugene system and the Crescent City-Eureka system are operated jointly with the Pacific Telephone & Telegraph Company.

The winds and floods which plagued us in late December and throughout January were the most damaging in the history of this area.

The trouble began four days before Christmas when high winds began battering the Southern Oregon area. The winds reached velocities in the order of 100 miles per hour, causing all land line communications to be interrupted. The only communications outlet for Southwestern Oregon was microwave radio.

When the high winds first hit, all commercial power in the Coos Bay area failed and our microwave equipment on both the Coos Bay-Eugene system and Coos Bay-Hauser system operated from our emergency microwave generator units for 16 consecutive hours.

On Christmas Eve — three days after the trouble began — part of our open wire in Southwestern Oregon was placed back in service. This enabled us to offer some relief to the overloaded microwave circuits. The worst, however, was still to come.

On Christmas Day, heavy rains caused innumerable land slides, and by this time the whole area was fast beginning to flood. The open wire that had been placed in service was again lost, and late in the afternoon of Christmas Day the only outlet for Coos Bay again was via the Coos Bay-Eugene microwave system.

Meanwhile, the Pacific Company at Eureka, California had lost all communications except the Crescent City-Eureka microwave system. The day after Christmas, a Lenkurt 42C open wire carrier line between Coos Bay and Crescent City was placed back in service. This provided Eureka an outside access via the Crescent City-Eureka microwave, Coos Bay-Crescent City 42C carrier, and Coos Bay-Eugene microwave. Two circuits connecting Eureka with Oakland, California were established over this route.

On December 27 and 28, the slides

Flood damage at Klamath, Calif.

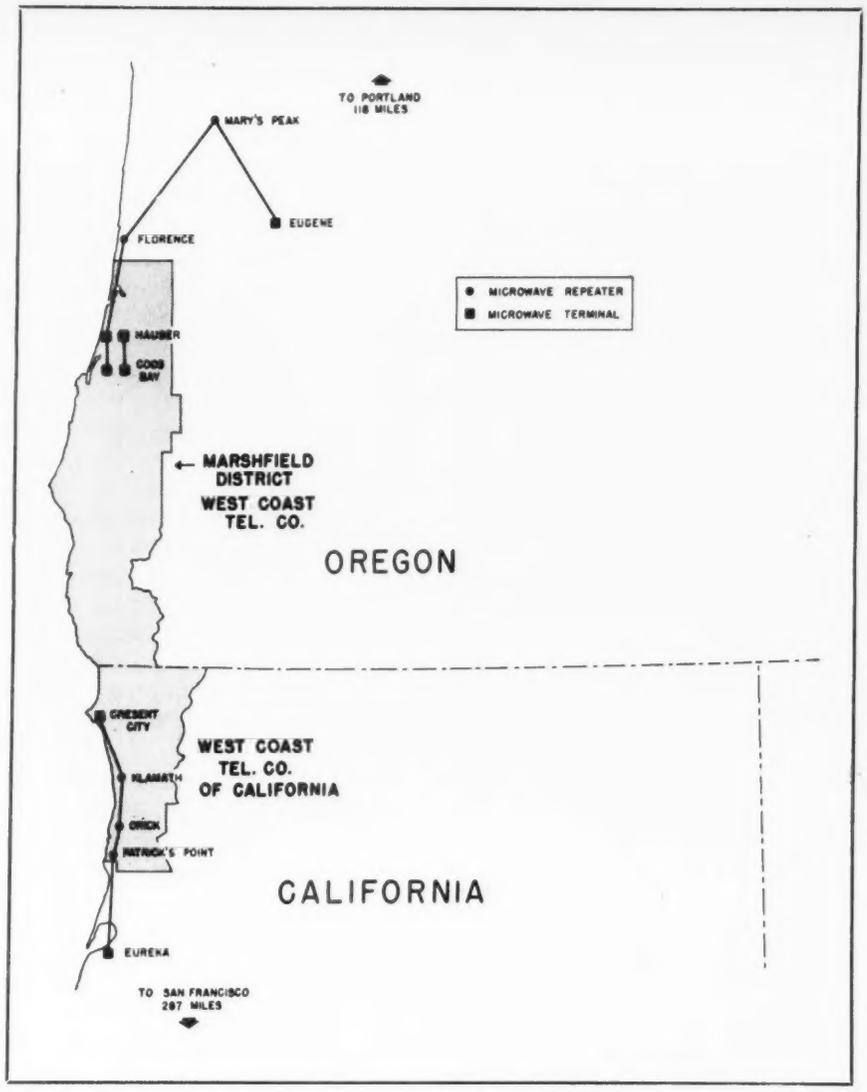


FIG. ONE

and floods continued. All efforts were concentrated on the Coos Bay-Crescent City 42C carrier line so that Northern California would not become isolated. For this carrier, as a link with the two microwave systems, offered the only means of communication into areas experiencing serious floods.

It was not until a full month later — on January 28 — that normal service was restored and all open wire facilities were up and working. Until this time — a period of five-and-a-half weeks altogether — the open wire facilities were in a constant state of flux. One day they would be up, the next day down.

During the critical period from December 21 to January 28, only one minor failure occurred on the Coos Bay-Eugene microwave system. The cause was unknown, and the failure lasted only 10 minutes.

No failures of any kind were experienced on the Coos Bay-Hauser system.

There were two failures on the Crescent City-Eureka system. One of the capacitors in a microwave modulator panel shorted out, causing an hour-and-a-half failure. The other outrage was not caused by the microwave equipment but was due to a cracked brush on one of the power generator units at the Klamath repeater station.

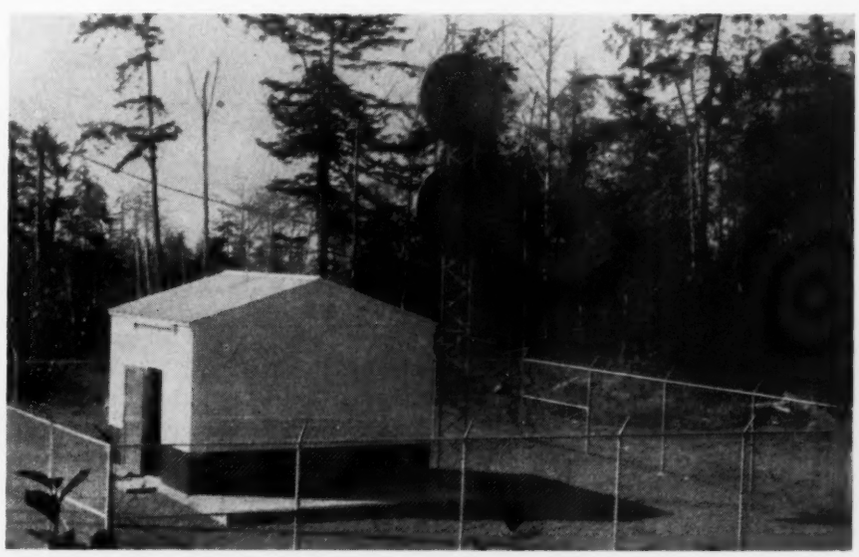
The Southwestern Oregon and Northern California area would have been completely isolated had it not been for our microwave systems and the competence of our maintenance personnel.

We relied entirely on our microwave circuits into Eugene for 46 hours from December 21 to 23; for 76 hours from December 26 to 29; and for 116 hours from January 7 to 11. During those periods all land lines into Eugene were out of service.

The Crescent City-Eureka microwave system was a life-saver by making possible emergency circuits out of Eureka into Coos Bay and Eugene when all other routes were cut off.

Two years ago, when we faced the problem of providing new toll trunks in the mountainous terrain of Southwestern Oregon and Northern California, we chose microwave because it offered the quickest and most economical way to get the number of circuits needed. Since these installations went into service, we have observed the ease of maintenance and other inherent advantages of microwave.

And now, as a result of our experiences during the recent windstorms and floods, we have conclusive evidence of what might be termed microwave's most important feature: reliability.



A West Coast Telephone Co., microwave repeater site near Coos Bay, Ore.

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W. H. Harrison Dies

WILLIAM HENRY HARRISON, president of International Telephone & Telegraph Co., died April 21 of a heart ailment at his home in Garden City, Long Island, N. Y. He was 63 years of age.

One of the outstanding executives in the communications industry, Mr. Harrison came to the IT&T in September, 1948, from the American Telephone & Telegraph Co., where he had been serving as vice president in charge of operations and engineering.

Born in Brooklyn, N. Y. in 1892, Mr. Harrison began his career in communications with the New York Telephone Co. in 1909. In 1911 he joined the Western Electric Co., where he served as an engineer until 1918.

From 1918 to 1933, he served as an engineer and in administrative engineering posts with AT&T's department of operations and engineering. In 1933, he was elected vice president in charge of operations of the Bell Telephone Co. of Pennsylvania and the Diamond State Telephone Co. He returned to the AT&T department of operations and engineering as assistant vice president in 1937, and a year later was elected vice president.

In July, 1940, Mr. Harrison was chosen by the late General William A. Knudsen to head the construction division of the National Defense Advisory Commission. When General Knudsen became administrator of the Office of Production Management in January, 1941, he made Mr. Harrison chief of the Shipbuilding and Construction Branch.

In 1941, he became director of production in the Office of Production Management, the second highest post in that agency. He also served as a member of the Joint Defense Production Committee of the United States and Canada.

In June, 1942, he was commissioned a Colonel in the Army and, a short time later, was promoted to Brigadier General, serving as director of procurement in the Services of Supply under General Brehon Somervell. In this capacity, he was in charge of procurement of all manifold items and materials needed for the prosecution of the war and made several flights to military installations throughout the world.

With his elevation to the rank of Major General in July, 1943, General

Harrison took over the direction of the Signal Corps Procurement and Distribution Service, which obtained and distributed the entire communications-radio-electronics material of the Army and the Army Air Forces. Upon his return to civilian life, he was again elected vice president of AT&T in charge of operations and engineering.

In recognition of his wartime services, Mr. Harrison was awarded the Distinguished Service Medal by the War Department; the Most Excellent Order of the British Empire with the degree of Honorary Commander; and the Cross of the French Legion of Honor with the rank of Officer. He was also awarded the Hoover Medal, the higest engineering civilian award, for "distinguished public service."

In addition to his many directorships in the IT&T System, Mr. Harrison was also a member of the board of directors of the Intertype Corp., Brooklyn, and the Nassau Hospital, Mineola, Long Island, N. Y. He also served on the Board of Governors of the New York Hospital.

Mr. Harrison was past-president of the American Institute of Electrical Engineers. He was a member of the board of directors of the Brooklyn Polytechnic Institute; of the board of trustees of Pratt Institute and the United Engineering Trustees, Inc.; of the Advisory Council for Science and Engineering of Notre Dame University; of the Advisory Council to the Department of Electrical Engineering of Princeton University; and of the honorary scientific societies, Eta Kappa Nu and Tau Beta Pi. He was granted honorary degrees by Brooklyn Polytechnic Institute, Notre Dame University, Rensselaer Polytechnic Institute and Manhattan College.

He is survived by his widow, the former Mabel Gilchrist Ouchterloney, and two sons, William Henry, Jr., of Barrington, Ill., and Dr. J. Grant of Garden City, N. Y.

Lloyd Spencer Dies

LLOYD L. SPENCER, a vice president of Stromberg-Carlson until 1949, died Saturday, April 7, at his home in Hudson, Ohio, following a long illness. He was 66 years old.

Mr. Spencer was born and educated in Rushville, Ill. He entered the field of selling at an early age, and served as sales manager of the Silas

Please turn to page 108

toll calls TIMED TO THE SECOND *Automatically*

This is the ultimate in modern, dependable and accurate computing of all toll calls TIMED TO THE SECOND. And what's more it's all done *automatically*—no need for operators to do it manually.

Just a flick of a lever, and Calculagraph computes, prints and records ELAPSED time of toll calls, thus eliminating human errors and allowing every operator to handle more calls—and more calls mean more dollars to you.

For time-saving operation, for dependable accuracy, for greater toll-call volume, install Calculagraphs on your switchboard. Investigate this model 33 shown here (others available according to need) and see for yourself what CALCULAGRAPH can do for you.
Don't delay, write today **for catalog to Dept. TM**

231 Photograph courtesy Lincoln (Neb.) Telephone and Telegraph Co. and Automatic Electric Sales Corp.

CALCULAGRAPH *Company*

HARRISON, N.J.

THE STANDARD OF ACCURACY SINCE 1892

NEW PRODUCTS' SHOWCASE

Brush Cutter

FOR RIGHT of way and roadside clearance and for tree falling and construction work, the new Senior Model "Back Carried" Southworth Brush Cutter cuts grass, weeds, brush and even trees up to 10 inches in diameter.

The 2.8 h. p. patented, lightweight machine comfortably fits on the operator's back. This leaves both hands free for cutting operations and clearing and assures perfect balance, firm footing. Because of its scientific construction and mounting there is no vibration and greater production with less effort and fatigue is possible.

Other Southworth features are the saw arm elbow, knee joint and "offset" cutting end. These permit the operator to tilt the saw up, down and sideways in any direction making possible the coverage of a far greater area from one position.

An important exclusive advantage is the patented "V" belt drive. This reduces maintenance to a minimum. There are no gears to strip, more actual working power is delivered to the saw and any necessary field repairs are easily made.

The cutter arm can be disassembled in less than 60 seconds for compact transportation. The complete machine can be carried in the trunk of an automobile. For complete data, *Check New Product* 924.

New Brush-cutter.

Transistor Oscillator

THE UNIT is a small self-contained battery-powered transistor oscillator providing stable sine wave output voltages of 0, -13 and -16 DBM at 1000 cycles into a 600-ohm line.

It uses a push-pull transistor, L C circuit inductively coupled to the output terminals by a separate transformer winding.

The unit is 2¼" x 3" x 4" and weighs 10.3 ounces. It is housed in a black molded bakelite case and is provided with both binding posts and telephone type plug for output connection.

According to the manufacturer, the frequency variation is less than 4 percent at ambient temperatures under 125°F and from a fresh to a discharged battery. The output voltage variation is less than 4 percent. Voltage output is mainly affected by changes in battery voltage. The maximum wave form distortion is less than 3 percent.

The self-contained mercury battery has a life of 700 hours with continuous operation and a much longer life with intermittent operation.

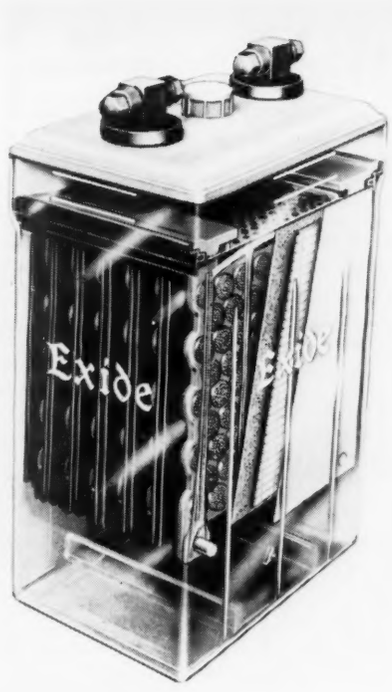
For complete data write Stewart Brothers, 315 W. Walton Place, Dept. TE&M, Chicago 10, Ill., or *Check New Product* 925.

New Batteries

A NEW LINE of Exide-Manchex batteries which feature longer life and higher instantaneous discharge rates has been introduced by Exide Industrial Division, The Electric Storage Battery Co., Philadelphia, Pa.

The new batteries, in heat-resistant polystyrene jars, are designed for stationary power applications in utility, telephone, railway and industrial plant operations. They retain the basic Plante positive plate, a feature of all Exide-Manchex batteries.

Major improvements have provided for: increased battery life; higher instantaneous discharge rates; reduced maintenance because of less frequent additions of water, more effective



sealing, and easier cleaning; and ready adaptability to cycle as well as float service.

Insulation or spacing between plates of opposite polarity consists of molded one-piece polystyrene dowels and microporous rubber separators. The dowels accomplish perfect alignment between plates and greater access of electrolyte to the Manchex positive plates, resulting in better electrical characteristics.

The new design jars and covers are made of light-weight, heat resistant and shock absorbing polystyrene. The jars are designed so as to provide increased volume of electrolyte. Additional electrolyte reduces the need for water addition to replace evaporation. A unique method for suspending the elements in the larger size jars is accomplished by support ledges molded into the jar walls.

Covers are effectively sealed to the jars and terminal posts.

The large electrolyte reservoir at the bottom of the jar provides ample space between the bottom of the plates and the jar to accommodate the full amount of sediment whether it be in float or cycle service.

The Manchex is Exide's first line, long- life battery for stationary power applications. An exclusive feature of this battery is the Plante positive plate consisting of a cast lead antimony grid into which rosettes or buttons of pure lead are permanently locked and then coated electro-chemically with the active material (lead peroxide). The battery gives unusually long life because the active material cannot wash out and because the buttons give a constant supply of solid lead for conversion into active material.

Further information on the new Manchex battery may be obtained by writing Dept. TE&M, Exide Industrial Division, The Electric Storage Battery Co., Box 8109, Philadelphia 1, Pa., or by checking *New Product* 926.

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NP 924..... NP 925..... NP926.....

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ADV. 1..... ADV. 2..... ADV. 3..... ADV. 4..... ADV. 5.....
ADV. 6..... ADV. 7..... ADV. 8..... ADV. 9..... ADV. 10.....
ADV. 11..... ADV. 12..... ADV. 13..... ADV. 14..... ADV. 15.....
ADV. 16..... ADV. 17..... ADV. 18..... ADV. 19..... ADV. 20.....
ADV. 21..... ADV. 22.....

THE BUYERS' GUIDE

ADVERTISING, Directories — *General Telephone Directory Co., 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 1]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 2]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. *Klein & Sons, Mathias, 7200 McCormick Rd., Chicago 45, Ill.*—[ADV. 3]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 4]

BRUSH & WEED KILLERS — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV. 5]

CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard. — *The Ansonia Wire & Cable Co., Ansonia, Conn.*—[ADV. 6)]

CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 7]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave.. Chicago 41, Ill.*—[ADV. 8]

FURNACES — *For quickly and economically melting lead and paraffin — Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.*—[ADV. 9]

INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 10]

LIGHTWEIGHT PULLERS — *Coffing Hoist Company, 800 Walters St., Danville 5, Ill.* — [ADV. 11]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 12]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 26, Minn.* —[ADV. 13]

POLES, Southern Yellow Pine — *Colfax Lumber & Creosoting Co., Inc., P. O. Box 23. Pineville, La.*—[ADV. 14]

POLES, Southern Yellow Pine — *Taylor Colquitt Company. 217 E. Main St., Spartanburgh, S. C.*—[ADV. 15]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 16]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 17]

REBUILT TELEPHONES & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.*—[ADV. 18]

TRUCK BODIES — *Highway Trailer Co., Edgerton, Wisc.*—[ADV. 19]

WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., Milltown, N. J.*—[ADV.. 20]

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket. R. I.*—[ADV. 21]

WIRE, Telephone, for all inside and outside uses — *Whitney Blake Co., New Haven, Conn.*—[ADV. 22]

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POSITIONS
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THE CLEARING HOUSE

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OPPORTUNITY
EQUIPMENT

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HELP WANTED

MANAGER WANTED
Chatham Telephone Company wants a Manager. For a new Dial system of 650 stations with automatic dial exchanges. Located in Central Upper Peninsula of Michigan. Must have Managerial ability plus inside and outside plant experience. Write. Chatham Telephone Company. Chatham, Michigan.

HELP WANTED
Good, reliable, man to maintain and operate 700 common battery plant in southern Indiana. State salary expected. Write Box 9018 Telephone Engineer Publ. Corp. 7720 N. Sheridan Rd., Chicago 26, Ill.

SALES ENGINEER WANTED
Telephone engineer with broad, general background in equipment and outside plant engineering to assist sales force in technical problems. To locate in Ohio with 30% of time in field. Excellent future. Salary commensurate with experience. Reply to Box 9017, Telephone Engineer and Management, 7720 Sheridan Road, Chicago, Illinois.

WANTED: Manager for REA Telephone Cooperative located in Central Georgia. Must have administrative ability to develop and maintain efficient operation. Experience in Public Relations and Organization desired. Permanent position carrying substantial opportunity for qualified person. Replies confidential. Write: C. J. Burch, President, Progressive Rural Telephone Co-op., Inc., Rentz, Georgia.

HELP WANTED
TELEPHONE SWITCHMEN
3 years experience
LINEMEN
3 years experience
STATION INSTALLERS
3 years experience
Excellent opportunity for advancement with a fast-growing Southern California Independent Telephone Company. Submit complete resume of experience, training and education, including references and recent photograph, to Box 9019, Telephone Engineer Publishing Corp. 7720 N. Seridan Road, Chicago 26, Illinois.

FOR SALE

HELP WANTED
MAN FOR COMBINATION WORK
Must have experience and capable of supervision of dial switching equipment. Write: Wilkes Telephone and Electric Company, Washington, Georgia.

Young Telephone Man. Must have several years experience, outside plant and C. O. E. Must be familiar with plant records and be able to meet people. Very interesting work. Chance for advancement. Salary open. Write Harold Ericson, Hector, Minnesota, or phone VIking 4-3633.

HELP WANTED — TELEPHONE SWITCHMEN
3 Year's Experience
CENTRAL OFFICE INSTALLERS
2 Year's Experience
Excellent opportunities for advancement with a fast-growing Southern California Independent Telephone Company. Submit complete resume of experience, training and education, including references and recent photograph to Box 9015, Telephone Engineer Publishing Corp., 7720 N. Sheridan Road, Chicago 26, Illinois.

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 6100 N. 20th, Philadelphia, Pa.

FOR SALE

For Sale

2 sections Western Electric No. 1 Toll switchboard, 2 positions per section, each section has 180 lamp terminated trunks with magnetic busy signal. Extra multiple available. Each position has 15 3 key cord circuits, order wire keys and one block per section. Price F.O.B. $200.00 per section.

4 positions No. 12 Western Electric Switchboard. 15 cord circuits per position with dial and cord, 2 positions with calculagraph. 200 lamps and jacks per position. Price: $250.00 per position F.O.B.

This equipment recently removed from Bell offices and is in good condition but end panels not available. Will cost about $85.00 each from Western Electric.

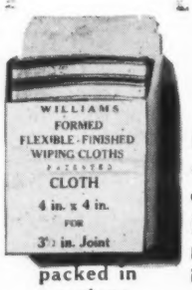
Also one Wilcox Electric all relay dial switchboard equipped with 60 lines and 6 CX type trunks, 7 links. Cap 100 lines and 12 links. Complete less batteries and main frame. Price crated F.O.B. $2,000.00.

Also 12 North Electric loop dial Auto-to manual trunk terminations in small cabinets. Three trunks per cabinet. Price: $75.00 per trunk in lots of 3.

Also 1 Automatic Electric 50 line 32 type dial board equipped 30 lines seven connectors-line finders; 1 reverting call switches, 4 loop dial trunks and manual office termination. In serviceable condition but requires some work done. With 3 amp. Raytheon regulated charger. Price F.O.B. crated, $500.00.

Prints available for all above equipment. Also other Miscellaneous Equipment.

Somerset Telephone Co.
North Anson, Maine



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WIPING CLOTHS
Cable-Splicers

Formed-flexible finishing cloths; (Patented); Flat finishing cloths; Catch cloths; Crotch cloths and Up-right joint catch cloths. Made of world-prize HERRINGBONE TICKING or imported English MOLESKIN. Write for literature and prices.

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FOR SALE

RECONDITIONED EQUIPMENT

W. E. #202 Desk type hand set, W/El - Hand units, 3 Cond. Cords. @ $8.75 ea.
W. E. — El — Hand Units Only, 3 Cond. Cord. @ $3.00 ea.
Conn. Elect. Hand Units, 4 Cond. Cords, Capsule Receiver, & Transmitters. @ $4.00 ea.
SUbcycle, Model M. 7.5-60 @ $25.00 ea.

Prices are F.O.B. Chicago

INDEPENDENT TELEPHONE REPAIR CO.
2137 West 21st St. Chicago 8, Ill.

SPECIFY TELERING for

Dependable and Economical Telephone Ringing Power Equipment.
Engineered for complete satisfaction.

Manufactured by
TELKOR, INC. Elyria, Ohio

FOR SALE

Model JC-1 Recordak Junior Microfilmer 3½ years old, in perfect operating condition. Pinconning State Bank, Pinconning, Bay County, Michigan.

FOR SALE

"Overstocked due to change in design, REA approved plastic cable; 14,125 feet of 26 pr. 24 ga. at $220.00 per M; 15,580 feet of 51 pr. 24 ga. at $419.00 per M; 2775 feet of 303 pr. 24 ga. at $2394.35 M. Granby Telephone Co., Granby, Mass."

PBX SWITCHBOARDS

★ Kellogg K-100 Masterbuilt. 100 lines with line relays, 15 cord circuits, 10 manual or dial trunks. (Reconditioned).
★ Western Electric #506-B Cordless. 12 lines, 5 trunks, 5 connecting circuits. (New).

BUCKEYE TELEPHONE & SUPPLY CO.
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AUTOMATIC ELECTRIC CO. #375-A COMMUNITY DIAL SWITCHBOARD
Immediate Delivery

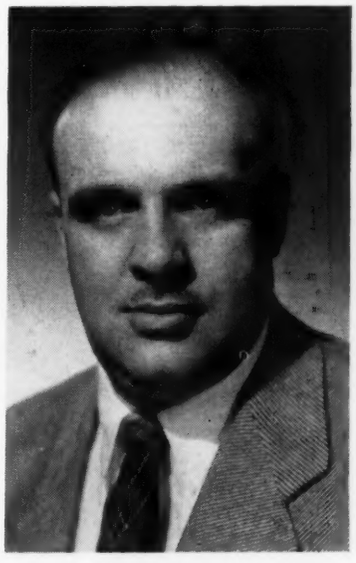
Equipped as follows:
200 Subscribers Lines
14 Coin Line Auxiliaries
24 Links
15 Master Office Trunks
20 Inter-Local Trunks
1 "A" Frame
1 Supplemented "A" Frame
1 "B" Frame
1 "C" Frame
1 Supplemented "C" Frame
1 Relay Cabinet.

Reply Box 9020, Telephone Engineer Publishing Corp., 7720 N. Sheridan Road, Chicago, Illinois.

Malcolm Herrick Named To New Stromberg-Carlson Post

MALCOLM P. HERRICK has been appointed staff assistant to John H. Voss, vice president in charge of the Telephone Division of Stromberg-Carlson, a division of General Dynamics Corp.

Prior to his new position, Mr. Herrick was chief engineer of Stromberg-Carlson's Radio-Television Division. He has been with the company since



M. P. HERRICK

1944. Mr. Herrick will assist the Vice President on matters concerning engineering and manufacturing. He is presently coordinating the engineering, manufacturing and sale of the new Pagemaster radio paging device. This is a personal pocket unit which gives a tone signal when an operator actuates a radio code-calling transmitter. Systems are designed for industrial, institutional, or city-wide use.

Mr. Herrick was born in Blue Hill, Maine, and was graduated from the University of Maine with a Bachelor of Science degree in electrical engineering.

He is a senior member of the Institute of Radio Engineers, a member of the Radio-Electronics-Television Manufacturers Association, the National Rifle Association, the National Muzzle Loading Rifle Association, and the Massachusetts Archeological Society.

L. P. Smith Joins Highway As Plant Manager

THE appointment of Louis P. Smith as plant manager of the Highway Trailer Co., Edgerton, Wis., has been announced by Harold J. Meagher, president.

For the past five years, Mr. Smith has been vice president of manufac-

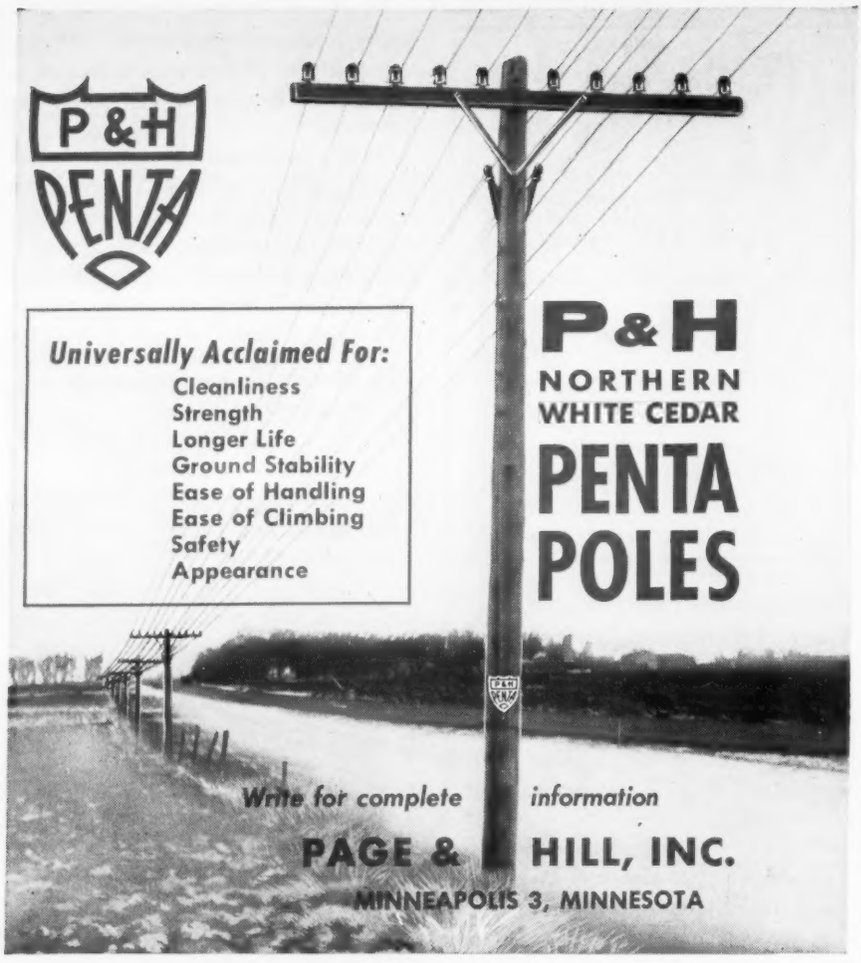
L. P. SMITH

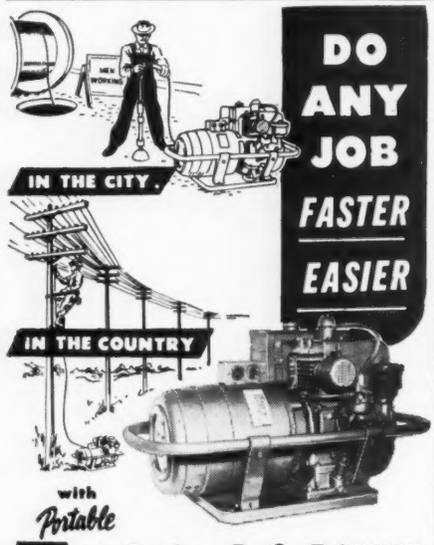
turing at the Morse Chain Co., a division of Borg-Warner Corp., Ithaca, N. Y. Prior to this association he had been employed in similar capacities with the Motor Products Corp., Detroit, Mich.; Crosley Corp., Cincinnati, Ohio; and the Chrysler Corp., Detroit, Mich.

New Booklet Describes "Sotchcast" Synthetic Resins

A NEW, 4-page, illustrated booklet describing "Scotchcast" brand synthetic resin products for electrical use has been announced by Minnesota Mining & Manufacturing Co., Dept. D6-81, 900 Fauquier Street, St. Paul 6, Minn.

The four-color booklet covers all "Scotchcast" synthetic resins and includes examples of typical applications with data on flexibility, viscosity, pot life, cure times and available forms.





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No matter where or what the job, a Katolight Portable Power Plant will simplify and speed up construction or maintenance work by supplying quick dependable electrical power right on the spot. Operates blowers, heaters, drills, hammers, saws, soldering irons, other portable electrical tools and equipment. Eliminates power line hookups.
Gasoline models from 350 Watt to 50 K.W. D.C. models 500 watt through 15 K.W. in standard voltages for portable, continuous or standby service.

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How to write a clear, logical technical paper

Step by step this authoritative book tells you how to select the type of report you should use, how to choose the most suitable forms and style, how to organize the material, and how to use figures, tables, and annotations—in short, make the report that is clear and understandable and wins acceptance for its ideas.

WRITING THE TECHNICAL REPORT

By J. Raleigh Nelson

University of Michigan
College of Engineering,
Professor Emeritus of English,
Third Edition, 356 pages, 5½ x 8½, 238 illustrations, $4.50

This practical guidebook takes up scores of specific points in the design and composition of the report and gives you exact directions for the setup of both long- and short-form reports, with numerous examples to guide you. In addition, the book outlines a system for the critical examination of the report to help you make sure it will meet the requirements of those who will read and use it.

Telephone Engineer Publishing Corp.
7720 Sheridan Road Chicago 26, Illinois

(Concluded from page 103)

E. Pearsall Co., New York City; Amplion Corp. of New York; and Gross-Brennan Distributors, New York, before joining Stromberg-Carlson in 1937 as general sales manager. He was elected vice president in charge of sales and a member of the board of directors in 1943.

Mr. Spencer, who lived in Clover Road, Brighton, was a member of the Rochester Club, Oak Hill Country Club, and the Rochester Chamber of Commerce during his residence in Rochester. He was also active in numerous national organizations, including the United States Independent Telephone Association, Telephone Pioneers of America, and the Radio-Electronics-Television Manufacturers Association.

He is survived by his widow, Josephine Matthews Spencer.

C & D Stockholders Elect Officers and Directors

AT THE ANNUAL stockholders meeting of C&D Batteries, Inc., held in Conshohocken, Pa. last month, the following directors were re-elected to the board: L. A. Doughty, J. F. Rittenhouse, F. S. Carlile, F. W. Altrup, T. L. Caldwell, H. E. Jensen, S. E. Doughty, L. M. Eble, Jr., R. M. Pease, J. F. Simon, Jr., and E. Booth.

Also elected to the board was L. R. Gardner, replacing S. W. Gibb, vice president in charge of sales, who began an indefinite leave of absence on April 1. Gardner's firm has been C&D's auditor since 1931.

At a board meeting immediately following, company officers were elected. Officers include L. A. Doughty, president; J. F. Rittenhouse, executive vice president; F. S. Carlile, vice president and treasurer; H. E. Jensen, vice president in charge of engineering and marketing; F. W. Altrup, vice president in charge of government sales; T. L. Caldwell, secretary; and H. R. Stewart, Jr., assistant secretary.

Minnesota Mining Advances Vincent Meyer

PROMOTION of Vincent Meyer as assistant division engineer for coated abrasives has been announced by Minnesota Mining & Manufacturing Co., St. Paul, Minn.

Meyer has been with the coated abrasives engineering group since 1948.

STROMBERG-CARLSON

Transmitter

A DIVISION OF GENERAL DYNAMICS CORPORATION

VOLUME 5, NUMBER 2 • MAY, 1956

Art Howell watches as operator takes reading of magnetic stabilization — adjusts capsule unit for optimum efficiency.

Better Conversation — Part II

Producing Receiver Capsule Units

by Arthur S. Howell and W. Alfred Codd

Electro-Mechanical Engineering

It takes two to make a conversation, and two perfectly balanced capsule units in a handset to bring quality transmission to each party. Last month we visited the Transmitter production line; with this issue we look in on the production of W-Type receiver capsule units.

This receiver unit is a precision device requiring critical air gap adjustment, a selected range of acoustic resistance, close tolerance parts, specially developed materials and absolutely clean internal assembly.

To assure that these conditions are met, all parts are delivered in sealed containers to the closed, filtered-air room; special fixtures have been designed to prevent damage in transit; all benches, containers and the floor are wiped and then vacuum cleaned as part of a daily routine.

Assembly operators, under the supervision of Miss Edith Karnisky, have been especially selected and given diligent training in handling the small delicate components. Precautions such as cleaning just before assembly in vacuum-exhaust chambers; loosening and removing minute metallic particles—too small to be seen with the eye—by a demagnetizing field; extreme care in adjusting the magnetic flux during the stabilization process are of paramount importance in producing stable units which meet the highly critical specifications.

Uppr right: ***Final assembly of the major components after cleaning in vacuum chamber.*** **Lower Right:** ***Magnetizing fixture develops high flux for magnetic saturation of permanent magnet.***

Upper left: ***Cementing armature to diaphragm using pressure fixture, then heat, for permanent bond.*** **Lower Left:** ***Crimping machine clamps coil securely in place in pole piece assembly.*** **Directly below:** ***Coil lead wires soldered in before assembling terminal plate including acoustic resistance element to pole piece.***

Chemistry, Determination, and Dial:

A progress story in the New South

An aerial view of Calvert City shows how 75 million dollars in new plant construction has transformed quiet countryside into a prosperous industrial center in only seven years.

Calvert City, in the western corner of Kentucky, owes its meteoric rise to a fabulous expansion of the chemical industry, attracted by cheap power, good transportation, raw materials located within a reasonable distance—and the determination of community leaders to provide the necessary services on which such industry depends.

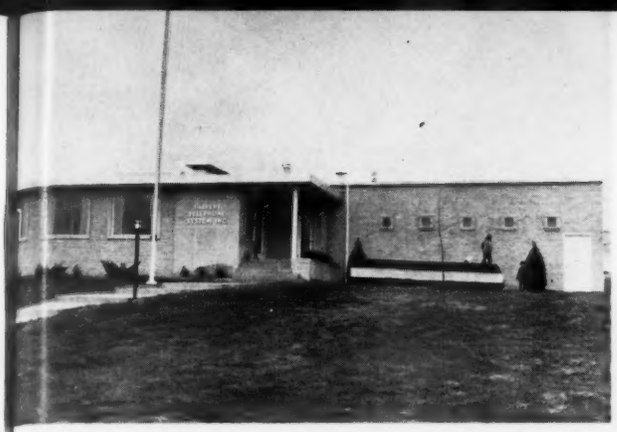
In only seven years more than 75 million dollars in chemical plant construction has resulted in the transformation of a quiet rural community into a booming industrial center. Characteristically, communications problems mushroomed. But the wide-awake Calvert Telephone System soon had the situation well in hand. The answer was the installation of XY Dial PBX's in the six major industries of the Calvert City area.

The roster of firms reads like a miniature Who's Who of American industry. Here is the lineup:

Pittsburgh Metallurgical Co.—XY F-10 system being installed.
Pennsylvania Salt—XY F-80 in service.
B. F. Goodrich Co.—XY F-80 installed.
National Carbide—XY F-10 in service.
General Aniline—XY F-10 being installed.
Air Reduction Co.—XY F-10 being installed.

The men responsible for telephone progress in the Calvert City area meet with some of their guests inside the new telephone building. Back row, left to right, are L. T. Carlson, President, and Perry Woodward, B. T. Malmquist, and Howard Thompson, all of the Calvert Telephone System. Front row, same order: W. H. Cleveland, General Auditor; Dan Corman, President of Northwestern Telephone Company; William Thomason, Calvert General Manager; and R. B. Stoner, General Manager of Northern Illinois Telephone Company at Forreston.

Dedication and open house for the Calvert Telephone System draws an array of notables. Noble J. Gregory, Congressman from the First Kentucky District, addressed the gathering. Seated on the platform, left to right, are Rev. Edward McCormick, Rev. H. C. Fletcher, G. Luther Draffen, Judge Nat Ryan Hughes, William Thomason, General Manager of the Calvert Telephone System, S. L. Moore of REA, C. E. Hunter Green of Southern Bell, Judge H. H. Lovett, and State Senator Wayne Freeman.



Offices and equipment of the Calvert system are housed in this handsome new building. With room for expansion built in, this structure is prepared to keep pace with the rapid growth of the Calvert City area.

The new home of the Calvert Telephone System was dedicated on March 3, with telephone company officials, local, state and national government representatives, and other visitors from Marshall County, and neighboring counties and states attending. Congressman Noble J. Gregory of the First Kentucky District, who was guest speaker, surveyed the progress made by Marshall County in recent years.

Another speaker was Circuit Judge H. H. Lovett, who reminisced about the earliest beginnings of telephone communications in the county. He recalled the first telephone line in the area, which connected Hardin and Olive, and was built by the late C. C. Starps of Hardin. Judge Lovett went on to review the growth of telephone service in Marshall County from its inception in 1896.

Mayor H. V. Duckett was in charge of the program, which was launched with an invocation by Rev. H. C. Fletcher, pastor of the Calvert City Methodist Church. Rev. Edward McCormick, pastor of the Presbyterian Church, gave the benediction at the conclusion of the ceremonies.

The Calvert Telephone System was represented by President L. T. Carlson, General Manager William Thomason, Treasurer B. T. Malmquist, General Auditor W. H. Cleveland, Perry Woodward, and Howard Thompson.

Guests included: Dan Corman, President of Northeastern Telephone Company; R. B. Stoner, General Manager of Northern Illinois Telephone Company; C. E. Hunter Greene, State Manager of Southern Bell; S. L. Moore of the REA; State Senator Wayne Freeman; Judge Nat Ryan Hughes; G. Luther Draffen, civic leader; and W. J. Pfaender of Stromberg-Carlson.

When the Calvert Telephone System cut over to XY dial, an important forward step was taken in the growth of the entire area. The availability of modern dial telephone service to homes as well as business and industry means, of course, a far-reaching advance in communications, which is the lifeblood of modern progress.

The Calvert system is completely new — new dial equipment, new toll circuits, new instruments, new wire, new cable, new poles, and a new building. The Calvert City exchange provides individual, two-party, and four-party service. As an added convenience, customers can dial calls directly to Benton and Gilbertsville. In every way the Calvert system is prepared to meet every possible need of residential, business, and industrial subscribers.

The Calvert City exchange was cut over to XY dial on February 24, in the teeth of a severe storm which demolished part of the old telephone plant. Fortunately, the new building was undamaged.

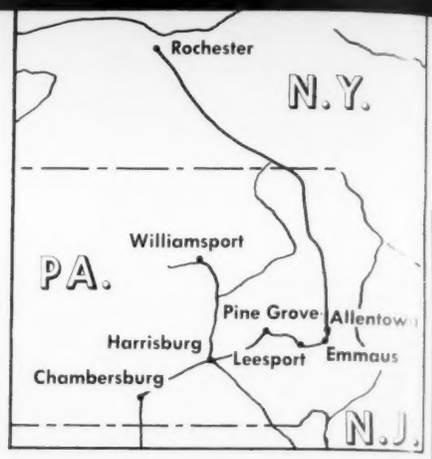
The present size of the system is 640 lines. There's plenty of room for expansion, and with the area booming as it is, the expansion will come.

Inside the Calvert System building for a look at the power bays are K. R. Jenkins (left), Stromberg-Carlson salesman, and E. L. Gear, company service engineer.

In photo at left, W. L. Parr, Manager of Western Kentucky Rural Telephone Co-op of Mayfield, looks over the XY equipment in the new Calvert Telephone System building.

Calvert System President L. T. Carlson, right, is proud of his new XY equipment. With him are Dan Corman, center, President of Northeastern Telephone Company, and W. J. Pfaender of Stromberg-Carlson.

The Postman's Holiday Ends

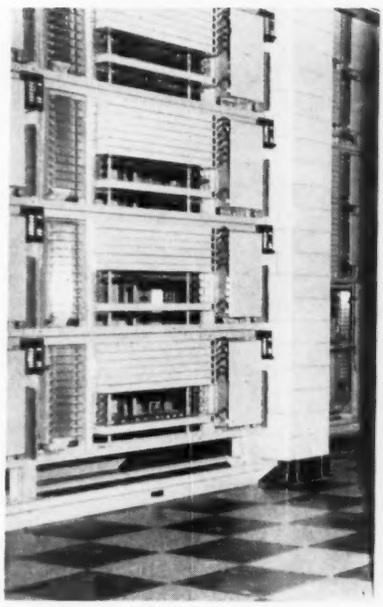


With full hearts and exhausted bodies we drove up to the house late that evening on July 30. The second Postman's Holiday was over, except for the wonderful memory of friendships made or renewed — and the chance to share our visits with a broader audience through these pages over the last nine months.

We had hardly crossed the Mason-Dixon line into Pennsylvania when we experienced the good service of the *United Telephone Company of Pennsylvania*. A college roommate had very recently come to Greencastle and the operator undertook to find him. Reminiscences flew over a hurried dinner, then on to the beautiful new XY dial office at *Chambersburg*. This conversion had been completed just two weeks before (see October 1955 *Transmitter*), bringing local and nationwide dial service to about 10,500 subscribers.

Telephone service was first brought to Chambersburg in 1890 by the Bell Company, which retired in 1930 in favor of the United Company. Since then improvement has been steady, with the greatest milestone passed this last summer.

In Harrisburg the next day John Siemons, General Plant Manager, welcomed us to the general offices. The United of Pennsylvania ranks first among the state's independents, having tripled telephones in service over the last ten years to a total exceeding 75,000.

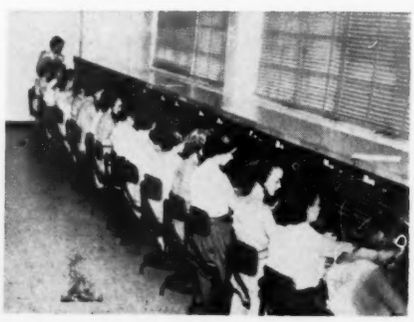


The XY dial equipment serving about 11,000 subscribers in the Chambersburg office of the United Telephone Company of Pennsylvania.

New Telephone office building will be the pride of Chambersburg for years to come.

John G. Siemons, general plant manager, maintains system-wide check from Harrisburg headquarters.

Mr. L. R. Thurston, president of United of Pennsylvania watches as first dial call from Chambersburg is placed to Junea, Alaska, by burgess H. A. Kottcamp.



A 16-position Stromberg-Carlson toll board, the responsibility of James H. Earley, general traffic manager, brings nationwide toll dialing to Chambersburg.

Typical of the 9 XY C.D.O.'s now in operation by the Lycoming Telephone Company.

Ralph Hyle, left, and Lew Hyle, of the Lycoming Telephone Company, in Pine Grove, Pa., community dial office.

The *Lycoming Telephone Company* has its headquarters in Pine Grove, Pa., with eight other XY dial exchanges located partly in the area just north of Williamsport and the rest nearby to the south and east. Lew and Ralph Hyle have received several citations for excellent management and could well rest on their laurels, but they probably won't be content to do this.

Lew Hyle has been primarily concerned with the engineering and smooth running of the exchanges; Ralph's experience was drafted by the REA where for some time he had been assistant head of the Management Section. Now the brothers are engaged in a millon-dollar building program to add more stations within their present service area.

It's only a short run over the rolling hills to *Leesport*, fast-growing residential and light manufacturing community on the outskirts of Reading. Mr. David Willits runs the company started by his father, who had a thriving fertilizer business on the side. The quality of the apples raised here was well attested by Mrs. Willets' fresh-made sauce, and is proclaimed abroad by the famed Ontelaunee Orchards. A cement factory nearby is served by Mr. Willets through a No. 121 Cordless PBX. He is glad he left room for expansion, as good service and "immigration" have increased his subscribers by over 500 since converting to XY dial.

The *Emaus Telephone Company* is also in a strategic suburban area on the fringe of Allentown-Bethlehem.

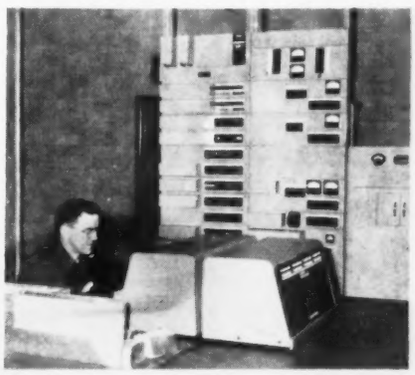
Leesport is largely residential—telephone building fits in with surroundings.

Mr. Allen Willits, left, and manager-son David Willits, center, give a customer an inside look at their Leesport, Pa. XY dial office.

Miss Christine Miller, president of the Emaus Telephone Co.

We were certainly relieved to hear that Miss Christine Miller was not harmed by the Fall floods in this area of Pennsylvania, as she has worked hard to build a fine large exchange which is a showplace in the area. With her good business management and the technical background of Donald Stortz, plant superintendent, the company has grown from 1500 stations in 1947 to over 5000 when we called.

Everything points toward a continuation of this growth. More and more people from Allentown — attracted in part by the high quality toll-free telephone service — are moving out to Emmaus (yes, the company and the town are spelled differently!) and a $23,000,000 oil terminal is bringing commercial income to the town. Miss Miller's plans are ready — her system is in stride with the community.



Donald Stortz, plant superintendent at Emmaus, Pa., has a well-planned layout and the right equipment for maintenance work.

Much of the extra space—so wisely planned—is now being used for 500 additional lines to meet unprecedented growth.

Management group at the Champlain Telephone Company cutover. Mr. Charles Southwick, general manager, is at the extreme right. Others, reading from the left, are Mr. Laurence Paquette, director; Mr. Kenneth Knapp, president, Mr. C. E. Southwick, vice-president and one of the original founders.

Champlain, New York Now Dialing

Way up in the extreme northeast corner of the state, where New York meets Canada, two communities with no illusions of spectacular grandeur are quietly carrying out a modernization program that will make their telephone service second to none.

Just as Samuel de Champlain found this natural pathway the best route for his explorations south from Montreal, so today the Lake Champlain — Hudson-Richlieu river route is the main point of entrance between Montreal and New York City.

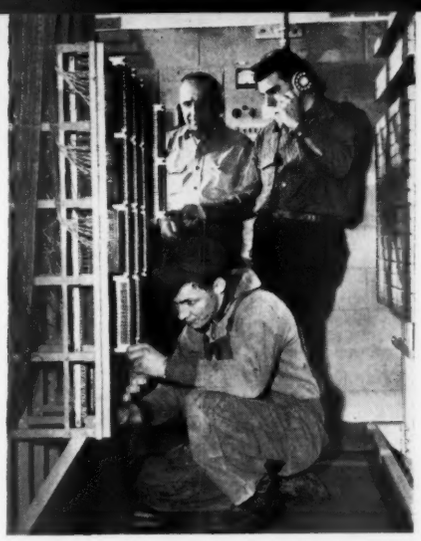
And therein lies some of the story of the Champlain Telephone Company, which has just converted its first XY dial office at the town of Champlain, and is preparing to cut over a similar exchange in Rouse's Point early this summer. Four customs houses within the 140 sq. mile service area attest to present through traffic; a projected super-highway and international waterway can easily double this business.

Started in 1903 with 75 farmer-subscribers, control was purchased in 1906 by the Knapp and Southwick families: parents respectively of today's president Kenneth Knapp and general manager Charles Southwick. Dairy farming, tourism and bookbinding machinery account for the healthy economy, and have led to a present total of approximately 1800 subscribers, who — by the way — enthusiastically supported the management through a husky oversubscription of new capital stock.

Paul Conover, a graduate of the XY Training School, is wire chief. Shown throwing cut-over switch.

Miss Cleoria Yakey, chief operator, and (from left) Helen Lafountain, Elizabeth Glande, Pauline Roberts enjoy the new Stromberg-Carlson No. 3 Toll Board.

Mr. Neil Lapine, office manager, leaves business office in capable hands of Annie Filion, Hazel Roberts and Mrs. Annie Southwick, wife of the general manager.



Just before cutover to XY dial, Augusta Telephone Company Manager Harold French (rear) watches son Larry, with handset, test a line, while lineman Art Terryn checks the mainframe.

New XY dial equipment at the Augusta Telephone Company serving 700 subscribers.

Augusta, Michigan:

Cutover to XY Dial Climaxes 46 Years of Service

On March 4 a 220-line XY dial system was placed in operation at Augusta, ushering in a new era for the 46-year-old Augusta Telephone Company.

Having enjoyed a steady growth through the years, the company now serves 700 subscribers in Augusta, Sherman Lake, and part of Gull Lake. Since 1943 the system has been operated and maintained by Harold French, manager, and Mrs. French. Their son Larry joined them a few years ago. The company is owned by 44 local stockholders.

The present directors and officers are Charles Simpson, President; Glaydon Bostwick, Vice-President; Imogene Wedel, Treasurer; Harold French, Secretary; Max Whipple, Manager; John Wedel and Larry French.

A new 24 by 20-foot building to house the XY equipment was erected last fall. Mr. and Mrs. French will continue to administer secretarial and maintenance work from the present office next door.

There are ten circuits to Battle Creek and nine to Kalamazoo to handle toll and long-distance calls.

Larry French, who has done maintenance work for his father for the past few years, will come to Rochester in September for a six-weeks' course in the care and maintenance of XY line equipment.

Meet Ed Dowejko

Director of
Systems Engineering

Edward J. Dowejko shares responsibility with Roy Jones, who was introduced last month, for all central office equipment; his work normally begins where Roy's ends, but naturally there is considerable overlap between the development and systems application phases.

The Systems Group is a large organization, comprising activity in such diverse fields as building and cable planning, circuit assignment, power requirements, and both dial and manual job specifications. Within the latter area, certain men are assigned on a branch office basis to perform the job engineering on contracts originating within that branch, making for greater familiarity with individual customer requirements and the problems of the locality.

Ed Dowejko, despite his youthful appearance, has a 20-year experience record in telephony — the last 10 with Stromberg-Carlson. Born and educated in Chicago, he began work as a clerk for an equipment manufacturer where he accumulated practical experience while moving toward his goal in the engineering department.

During the war Ed went overseas with the 106th Signal Company, saw action in Germany and was captured in the Battle of the Bulge. For Ed, and his bride Ann back in Chicago, it was a hard pull until war's end and release.

Joining Stromberg-Carlson in 1946, Ed started by preparing equipment lists for the early XY dial offices, became group supervisor, section head in December, 1954, and was promoted to his present position in October, 1955.

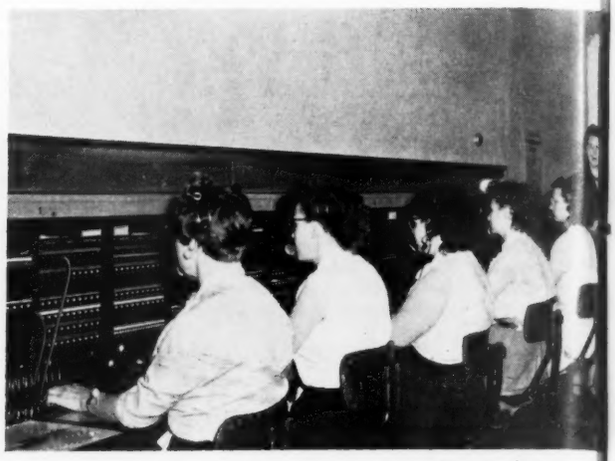
Ed and Ann Dowejko are active in their church parish and the local American Legion post. Ed also feels called upon to instruct his son Edward (12) in the fine art of golf during the season, until winter forces them to move down cellar to the model railroad table.

Mostly Pictures:

Cutover Coming, Customer Courtesy Call, Convention

Ed Carlson of Creston, Iowa. His story next month.

Arthur Kelley of Clarinda, Iowa, finds the Stromberg-Carlson Hands-Free telephone especially useful when looking up information.



Mrs. Lemah Howard, chief operator of Clarinda, Iowa, has seen several switchboards during 30 years of service. Tolls have increased from 30,000 to 55,000 per quarter in last 9 years.

Mrs. Emery Hunt of Blair, Nebraska, selects Stromberg-Carlson colored telephone to match new interior decoration. Mr. Hunt accedes to her choice; Art Preble checks his notes.

Make your call from your car. Another innovation which marks the progressive attitude of this company.

Your request: "Information Please" will be courteously and efficiently handled by Clarinda operator.

Mrs. Pat Carey watches her husband (center) Association President, present plaque to Mr. Fuerst.

To OTTO FUERST
Manager United Telephone Co. of the West,
Commemorating 60 years of devoted service to the Independent telephone industry and the Nebraska Telephone Association.

Stromberg-Carlson colored telephones complete the full line of instruments adopted as standard by this company.

5:15 P. M. and where is the boss, Mr. Burt Kelley? Well, where would you be on the first warm Spring afternoon?

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Published by
STROMBERG-CARLSON COMPANY
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Rochester 3, New York
GEORGE B. FORBES, *Editor*

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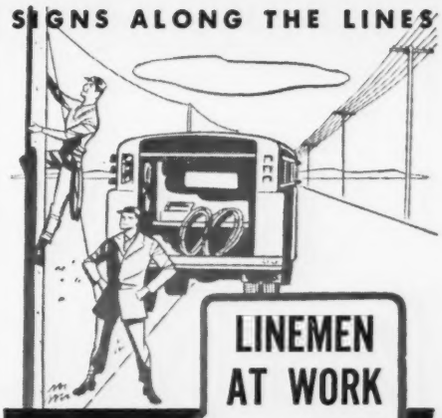
SIGNS ALONG THE LINES



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INDIANA
STEEL & WIRE COMPANY, INC.
Muncie, Indiana

the BACK of the BOOK

By John G. Reynolds

A GOOD QUESTION

INFORMATION — the telephone variety — covers a lot of territory. That's what we gather from a story we saw recently in the *Wall Street Journal.*

A customer called Information to request the number of a local department store.

"The number is CA pital 3-2876," reported the operator.

There was a long pause.

"Operator," asked the subscriber in an embarrassed tone of voice, "How do you make a capital three?"

COSTLY NAP

THERE'S a chap down in Quincy who can bear eloquent testimony that it's expensive to use a telephone booth for a siesta. Found asleep in a booth, he was fined six dollars for being disorderly — and intoxicated. Following this, he learned he owed an additional $6.05 for the long distance call he was making when he dozed off.

MYSTERY SOLVED

AN UNUSUAL method of checking up on calls received while you're not at home was revealed when a Plant man called a subscriber to ask if she had been receiving many wrong numbers lately.

It hadn't bothered her, the subscriber answered, but her telephone had rung a good many times when she was out.

And how, demanded the telephone man, did she know that?

"If the bird's down when I get home," she explained, "I know the telephone has rung."

"But couldn't he fly back up again?"

"It can't fly," said the customer. Then she went on to explain that the bird was made of plaster. When she left the house, she placed it on the bell box. Vibration of the ringer shook it off to the floor and she knew she had missed a call.

WRONG NUMBER

BUROCRACY tends to generate awe in those who live under it and therefore we admire the independent spirit exhibited by Mrs. James G. Carmody of Girard, O. Mrs. Carmody is the lady whose telephone number happens to be identical with that of the Pentagon in Washington and because of this she has been answering calls for generals, colonels, and other military and governmental bigwigs.

What impresses us is her reaction to the suggestion either she or the Pentagon would have to change numbers. She said: "Well, it won't be me. They'll just have to do something down there in Washington."

WORTH THE PRICE

FELLOW complaining of the high cost of the luxury of an upstairs extension telephone got his comeuppance not long ago.

According to *Blue Bell* the Mrs. departed for church, leaving him as a baby sitter. Before taking off, she had inadvertently locked the bedroom door with him on the inside. Without the extension our friend would have passed a grim Sunday morning. But having it, he called a neighbor to let him out, and in no time life was bright again.

SOUTHERN INDEPENDENTS

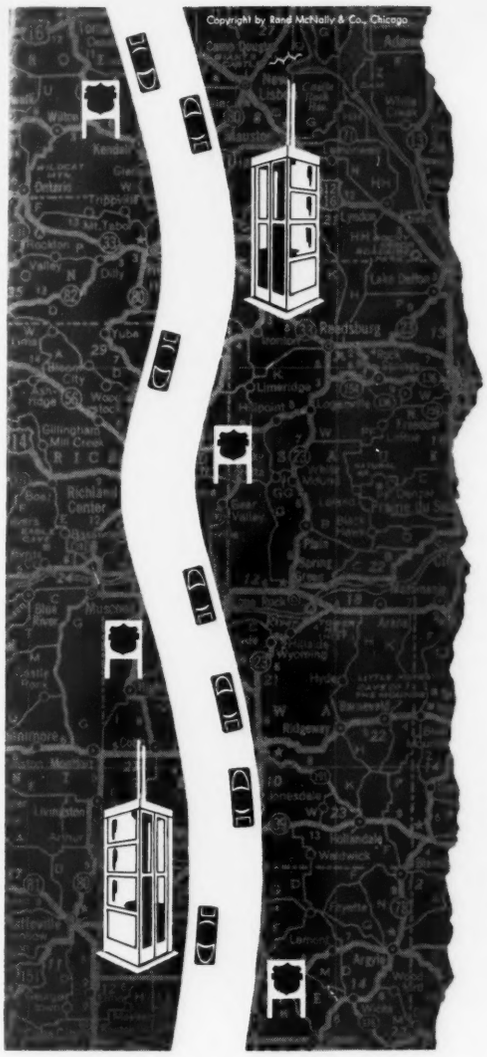
THE EDITORS of *Southern Telephone News, employe* magazine of Southern Bell Tel. & Tel. recently gave Independents operating in the Southeastern states a well-deserved pat-on-the-back.

One out of every five telephones in the nine southeastern states, said the editors, is owned and operated by an Independent telephone company. Of the 6,145,688 telephones in these states at the end of 1955, 1,245,628 were operated by Independently-owned (non-Bell System) companies. This is greater than the total number of telephones served by Southern Bell as recently as January 1, 1940.

Independent companies in the southeast are growing at an unprecedented rate. The number of telephones they serve increased 118,720 during 1955, and the total number at the year end is more than twice what it was only seven years ago.

The Independent companies are now engaged in a vast program of improvement, extension and modernization of their facilities. More than a million of the telephones they now serve in the Southeastern states area are dial, which is more than four times the number of dial telephones served by these companies at the end of 1948. One hundred and fourteen new Independent dial central offices were placed in service last year and 532 new dial offices have been added during the past seven years. Many Independent toll centers now have intertoll systems for operator toll dialing and equipment has generally been provided in a manner to facilitate conversion to ultimate direct distince dialing.

It is truly remarkable that while nearly 76 million interchanged long distance calls were made in 1955, the customer feels that only one, "his company," is taking care of his business — unaware that this message may involve facilities and operators of two or more separate companies. As we have pointed out in several editorials this team work among all telephone companies, together with their continuing expansion and service improvement programs, is the great strength of the telephone industry to meet communication needs in our ever-growing country.



you can *collect toll* from those travelers

with outdoor paystations on highways

your company can secure toll revenue even from travelers who are only "passing through". Many telephone companies find that good-looking booths, prominently marked with appropriate signs, can build a substantial amount of **additional** toll business. Choose yours from this page—and Automatic's big Catalog #8000.

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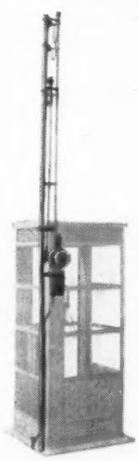
This outdoor paystation telephone booth is recognized as one of the leaders in its field. It is simple, neat in design, larger and more comfortable, with better ventilation and illumination. Its Alumilite (natural aluminum, anodized) finish is very hard--pencil marks and grease smudges rub off easily. Easy erection, installation and maintenance make it a premium outdoor paystation booth.

Write Automatic Electric today for complete detailed information. Your inquiry will be promptly acknowledged.



TBM Service Entrance Mast

For best outdoor booth installations use the TBM Entrance Mast for complete service entrance facilities. Easy to install—raises telephone and power lines for proper ground clearance at less cost than a pole installation. Standard mast is furnished with two conduits, insulators, wire holders and entrance devices. Meter socket, breaker box and time-switch for illumination can be ordered separately.

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